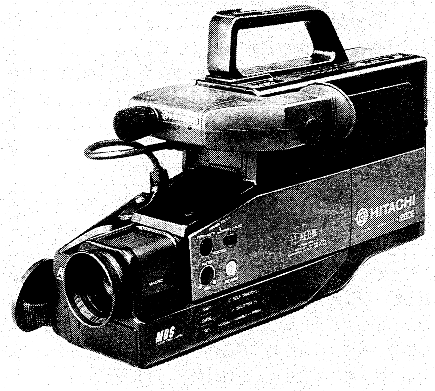
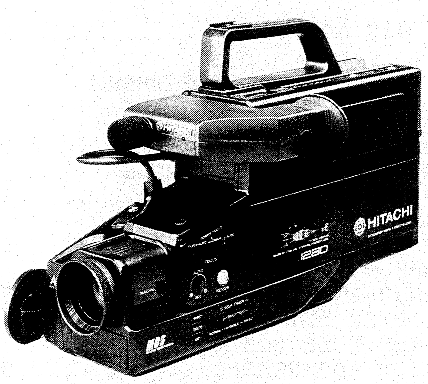
HITACHI
SERVICE MANUAL

TK **No. 3006E**

VM-1200E, E(UK, AV)
VM-1280E (AU, AV)

Technical Data


VM-1200E


VM-1280E

MANUAL RELATED TO THE VM-1200E AND VM-1280E

TITLE	MODEL	NANUAL No.
Technical Information	VM-600E	No. 2807E

VHS

THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER. FOR PROPER OPERATION ONLY THE VHS TYPE CASSETTE MUST BE USED.

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers'! Critical parts are marked with ⚠ in the schematic diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CAMERA/RECORDER

January 1989 TOKAI WORKS

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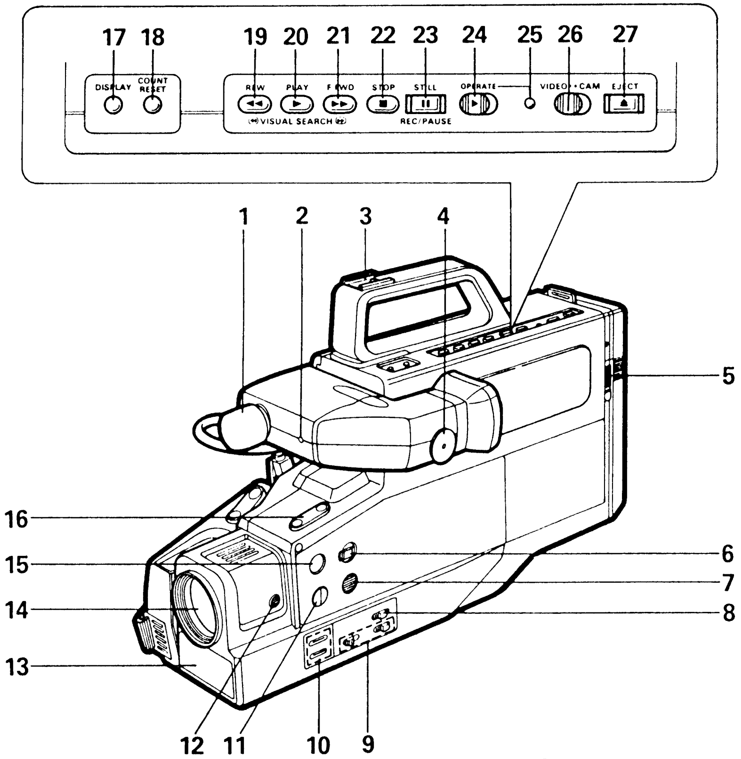
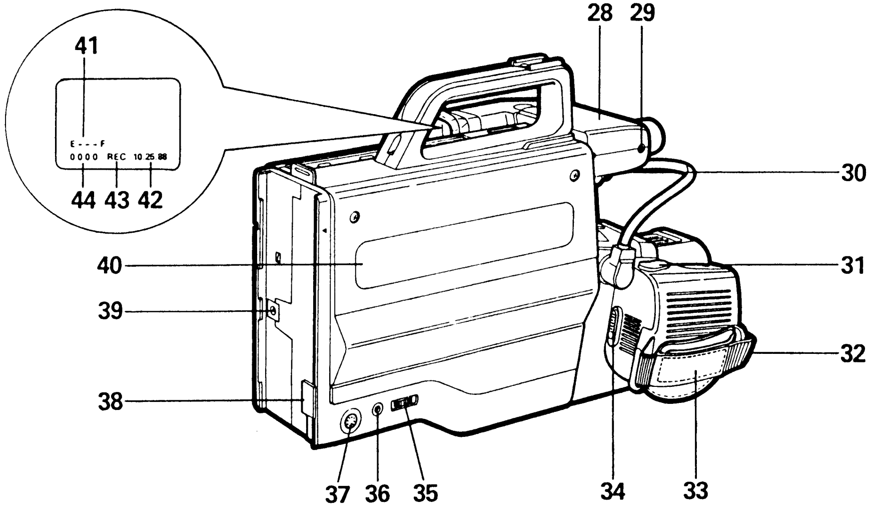




1. **Microphone**
   Sensitive to sounds coming from the direction in which the camera is pointed.
2. **Record Indicator**
   Flashes for about 10 seconds when the SELF TIMER Switch is pressed during record/pause (stand-by) mode and stays on to indicate recording starts.
3. **Accessory Shoe**
   Used to attach the Camera Light. (Not supplied)
4. **Diopter Control**
   To use the electronic viewfinder without eyeglasses on, turn this control knob for your optimum focus adjustment.
5. **BAT EJECT Lever**
   Releases the Battery or the AC Adaptor/Charger attached to the Camera/Recorder.
6. **AUTO/MAN FOCUS Switch**
   Set this Switch to the "AUTO" position for automatic focusing, and to the "MAN" position for focusing with the Power Focus Button.
7. **REVIEW Button**
   Used to review the last few seconds of the recorded segment in the record/pause mode.
8. **SELF TIMER Switch**
   This Switch allows you to start recording after about 10 seconds when the Switch is pressed.
9. **SHUTTER SPEED Control Switches**
   Used to control the shutter speed during recording and/or record/pause (stand-by) mode.
10. **DATE Set Buttons**
    Used to set the date during pause (stand-by) mode.
11. **IRIS Control**
    When this Control is in the "AUTO" position, the iris is controlled automatically. Turn this Control to the right or left for manual iris control.
12. **MACRO Button**
    Used to shoot objects as close as 1 cm from the lens tip.
13. **Auto Focus Window**
    To automatically focus the camera lens, this window transmits and receives infrared light which is reflected off the subject. Make sure you don't obstruct this window when recording.
14. **Lens**
    F1.6 (12 ~ 72 mm) 6:1 power zoom lens features with auto focus and auto iris functions.
15. **PUSH AUTO Focus Button**
    Auto focusing can be also performed during manual focus mode by pushing this Button.
16. **POWER FOCUS Switch**
    Set AUTO/MAN FOCUS Switch to "MAN" position and then focus on the object by pressing this Switch for manual focusing.
17. **DISPLAY Button**
    When VIDEO/CAM Select Switch is set to "VIDEO" position, pressing this Button causes battery indicator and 4-digit tape counter to appear in the Camera/Recorder's electronic viewfinder. Press the Button again to delete all displays.
    When VIDEO/CAM Select Switch is set to "CAM" position, pressing this button causes the 6-digit date display to appear in the viewfinder. Pressing the Button again will cause battery indicator and 4-digit tape counter to appear in the viewfinder. Pressing the DISPLAY Button once more clears all graphics from the viewfinder.
18. **COUNTER RESET Button**
    Press to reset the Tape Counter to "0000".
    NOTE:
    - Tape Counter and Date displays are stored for about four hours even if power is turned off.
19. **REW Button**
    Press this Button during Stop or Fast forward mode, and fast-rewinding starts. "REW" indication appears in the viewfinder whenever the tape counter is present. Press the Button during playback of tape, and the tape is played back in the rewind direction approximately 3 times faster than the normal speed to confirm the recorded contents.
    Press PLAY Button to return to normal playback mode or press STOP Button to stop tape movement.
20. **PLAY Button**
    Used for playback.
21. **F.FWD Button**
    Press this Button during Stop or Rewind mode, and fast-forwarding starts. "FF" indication appears in the viewfinder whenever the tape counter display is present.
    Press the Button during playback of tape, and the tape is played back in the forward direction approximately 3 times faster than the normal speed to confirm the recorded content.
    Press PLAY Button to return to normal playback mode or press STOP Button to stop tape movement.

22. **STOP Button**
The STOP Button is used to stop playback, rewind, and fast forward operations. The STOP Button has no effect during record operation.

23. **STILL/REC/PAUSE Button**
When this button is pressed during recording, the tape stops and the Camera/Recorder enters the record/pause (stand-by) mode. When this button is pressed again, the tape runs to resume recording. This button may be also used to display a still picture during playback mode.

24. **OPERATE Button**
Press this Button to turn Camera/Recorder on. Press again to turn Camera/Recorder off.
OPERATE Light illuminates when this Button is pressed and Camera/Recorder is on.

25. **OPERATE/Dew Indicator Light**
Flashing of the Light indicates dew condensation on Camera/Recorder mechanism. While this Light is flashing, the unit will not operate. If this ocurs, eject the tape and leave the power on. When the Light stops flashing, the unit can be operated.

26. **VIDEO/CAM Select Switch**
This Switch changes the Camera/Recorder to the record mode or to the playback mode. The Switch must be in "CAM" position for recording.

27. **EJECT Button**
Press to insert or remove the cassette.

28. **Electronic Viewfinder (EVF)**
Displays what the Camera/Recorder lens sees. The electronic viewfinder also functions as a convenient black-and-white monitor during playback of recorded material.

29. **MIC Jack**
Connect an external microphone (Not supplied) here to record sound from the external microphone.
NOTE: Connecting an external microphone automatically, switches off the built-in microphone.

30. **MIC NORMAL/WIND Switch**
This Switch is used to reduce noise that occurs due to wind. Place the Switch in the "NORMAL" position for normal use.

31. **Power Zoom Switch**
This switch performs zooming electrically.
"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.

32. **Lens Cap Tab**
Place the Lens Cap on this tab when you are ready to record a scene. The tab also prevents the Lens Cap from swinging around on its cord.

33. **Hand Strap**
Adjust to best fit to your hand.

34. **Record Start/Stop Switch**
This Switch is used to control the Camera/Recorder. When this switch is pressed with the Camera/Recorder set to the recording mode, the tape runs to start recording.
When this Button is pressed again, the tape stops and the Camera/Recorder enters the record/pause (stand-by) mode.

35. **TRACKING Control**
Used when playing a tape recorded on another VTR. Adjust for best picture. At all other times leave it in the center position, which can be found as a small detent in the movement of the knob.

36. **EARPHONE Jack**
Sound being recorded by the microphone or played back may be monitored by earphone (Not supplied) to this jack.

37. **A/V OUT Jack**
Connect the Audio/Video Output Cable to this jack and to the audio and video inputs of your TV/monitor receiver. You may also connect the optional RF Converter Unit to this jack and your TV receiver.

38. **Power Terminal Protection Cover**
This Cover should be in the uppermost position covering the terminal at all times.

39. **DC IN-12V Jack**
Used for the optional Car Battery Cord which connects to the cigarette lighter socket in your car.

40. **Cassette Holder**
Press EJECT Button to open the Cassette Holder. Be aware of the Cassette direction when inserting.
NOTE: Power source must be connected to open the Cassette Holder.

41. **BATTERY Indicator**
Indicates the battery condition;
- When the battery is fully charged, the display reads "E– – –F". When the battery is very near empty, only one dash remains. When the last dash starts blinking, you should find an alternative power source or recharge the battery.

42. **DATE Indicator**
Indicates the date during the record or record/pause (stand-by) mode. You can record the date with object when recording.

43. **MODE Indicator**
Indicates the operating modes;
- "**REC**" appears during the record mode.
- "**REW**" appears during the rewind mode.
- "**FF**" appears during the fast forward mode.

44. **TAPE COUNTER**
- Shows tape counter (0000–9999).

SPECIFICHE

■ **Dati Generali**

Alimentazione:	12V CC
Consumo elettrico:	9,5 Watt (con il tasto AUTO/MAN FOCUS in posizione MAN)
Dimensioni (L x A x P):	mm. 117 x 230 x 348
Peso:	2,0 Kg.

■ **Sezione Videoregistratore**

Sistema:	VHS
Sistema di registrazione/riproduzione:	Quattro testine video di registrazione/riproduzione
Segnale video:	Segnali PAL Color e CCIR monocromatico su 625 linee
Velocità del nastro:	23,39 mm/sec
Ingresso video:	1,0 Vp-p, 75 Ohm (con adattatore di ingresso Audio/Video)
Uscita video:	1,0 Vp-p, 75 Ohm
Ingresso microfono:	–68 dB, superiore a 1 kOhm
Ingresso audio:	–8 dB, superiore a 50 kOhm (con adattatore Audio/Video)
Uscita audio:	–8 dB, inferiore a 1 kOhm
Uscita cuffia:	–26 dB, (terminale da 8 Ohm)
Tempo di avanzamento veloce e di riavvolgimento:	Meno di 8 minuti con videocassetta E-180

■ **Sezione telecamera**

Scansione:	625 linee/50 campi/25 fotogrammi
Minimo di luce richiesto:	10 Lux
Aparato captor:	2/3" MOS Imager a stato solido
Diametro dell'obiettivo:	46 mm.

1. COVER

1-1. Electronic Viewfinder (EVF) Removal

1. Disconnect the EVF cable. (See Fig. 2-1)
2. Move the EVF in the direction of arrow (A).
3. While pulling the EVF shoe spring in the direction of arrow (A), remove the EVF in the direction of arrow (B). (See Fig. 2-2)
4. When reinstalling the EVF, first attach the EVF shoe spring to the EVF shoe.

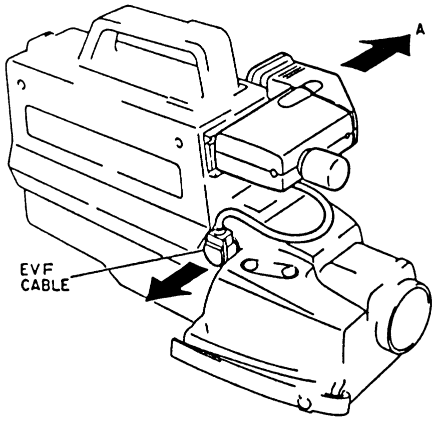


Fig. 2-1

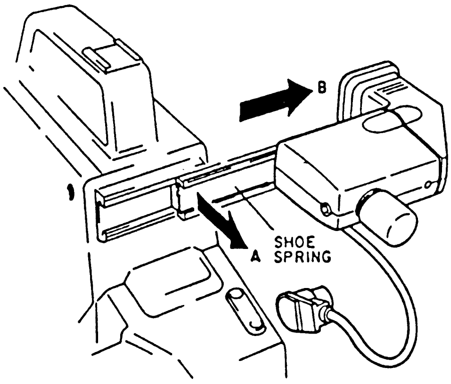


Fig. 2-2

1-2. Electronic Viewfinder (EVF) Shoe and Accessory Shoe Removal

1. Remove the EVF. (See Figs. 2-1, 2-2)
2. Remove the EVF shoe in the direction of arrow (A). (See Fig. 2-3)
3. Remove one (1) screw holding the EVF shoe.
4. Remove the gum spacer from the inside of the right cover.
5. Remove one (1) screw holding the plate spring and remove the plate spring in the direction of arrow (B).
6. Remove one (1) screw holding the accessory shoe and remove the accessory shoe in the direction of arrow (C).

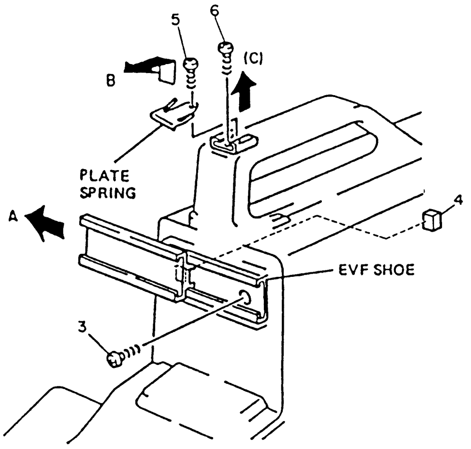


Fig. 2-3

1-3. Handle Removal

1. Remove one (1) screw holding the handle. (See Fig. 2-4)
2. Remove the handle in the direction of the arrow.

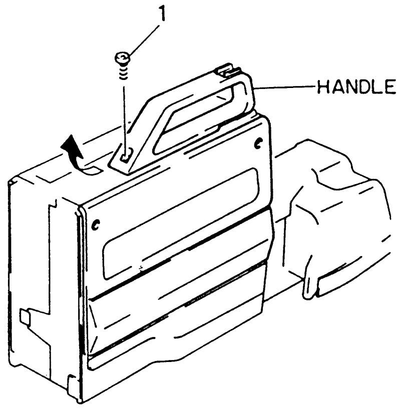


Fig. 2-4

1-4. Cassette Lid Removal

1. Remove two (2) screws holding the cassette lid. (See Fig. 2-5)
2. Remove the cassette lid in the direction of the arrow.

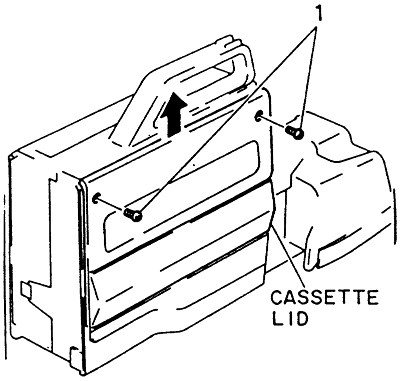


Fig. 2-5

1-5. Left Cover Removal

1. Remove the EVF. (See Figs. 2-1, 2-2)
2. Remove one (1) screw holding the grip cover and remove the grip cover. (See Fig. 2-6)
3. Remove three (3) screws holding the left cover and filter ring.
4. Remove six (6) screws holding the left cover. (See Fig. 2-7)
5. Remove the left cover in the direction of the arrow.

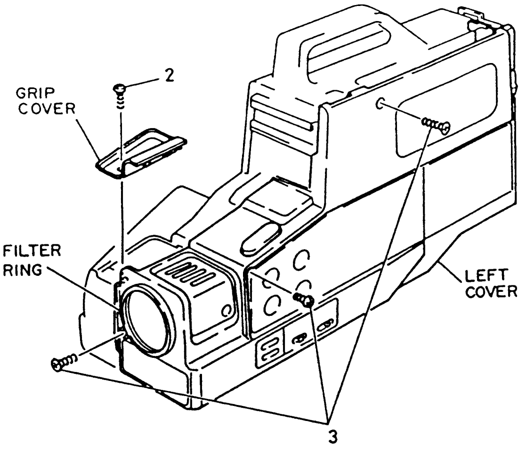


Fig. 2-6

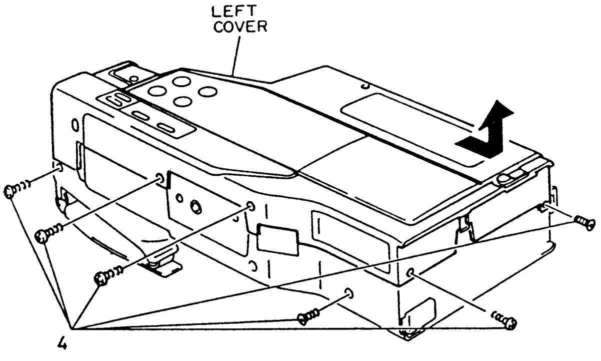


Fig. 2-7

1-6. Right Cover Removal

1. Remove the EVF. (See Figs. 2-1, 2-2)
2. Remove the cassette lid. (See Fig. 2-5)
3. Remove the left cover. (See Figs. 2-6, 2-7)
4. Disconnect connector CN902. (See Fig. 2-8)
5. Remove three (3) screws holding the right cover. (See Fig. 2-9)
6. Remove two (2) screws holding the right cover. (See Fig. 2-10)
7. Release one (1) tab. (See Fig. 2-9)
8. Lift up the right cover in the direction of the arrow so that the safety tab switch is not caught, to remove the cover. (See Fig. 2-10)

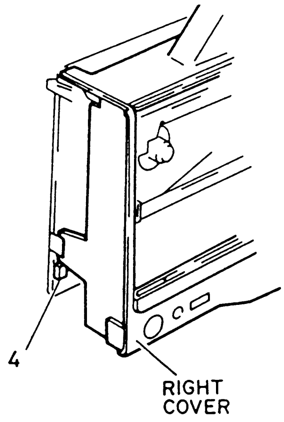


Fig. 2-8

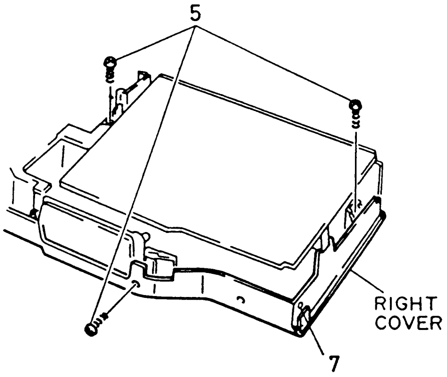


Fig. 2-9

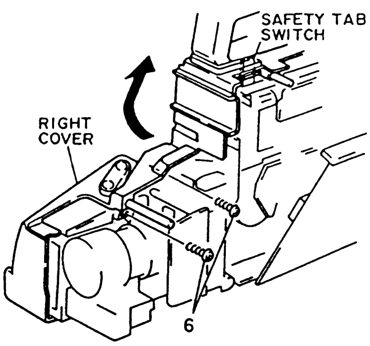


Fig. 2-10

2. CIRCUIT BOARD

Remove all the covers as previously given.

2-1. Main Circuit Board Removal

1. Disconnect one (1) ground lead from the main circuit board. (See Fig. 2-11)
2. Release two (2) tabs holding the main circuit board.
3. Open the main circuit board slightly and disconnect three (3) connectors (CN102, CN103, CN412).
4. Open the main circuit board in the direction of the arrow.

5. Disconnect thirteen (13) connectors (CN404, CN408, CN415, CN416, CN612, CN903, CN904, CN905, CN906, CN907, CN908, CN909, CN911). (See Fig. 2-12)
6. Disconnect two (2) flat cables (CN201, CN613).
7. Release two (2) stoppers holding the main circuit board.
8. Remove one (1) screw holding the ground lead. (See Fig. 2-13)

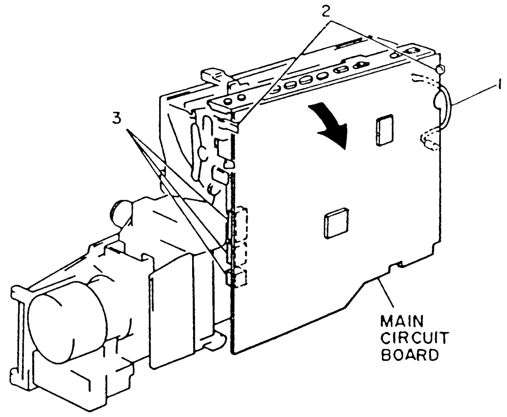

2
1
3
MAIN CIRCUIT BOARD

Fig. 2-11

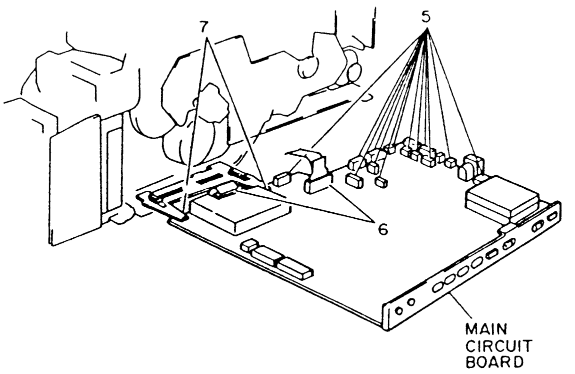

7
5
6
MAIN CIRCUIT BOARD

Fig. 2-12

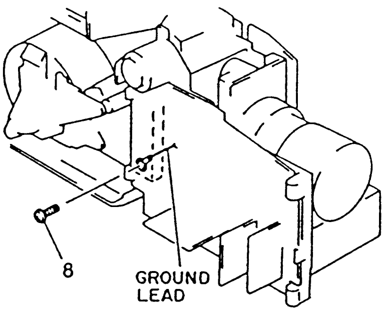

8
GROUND LEAD

Fig. 2-13

2-2. Tracking VR Circuit Board Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect two (2) connectors (CN408, CN903). (See Fig. 2-14)
3. Release one (1) tab of the tracking VR circuit board holder.

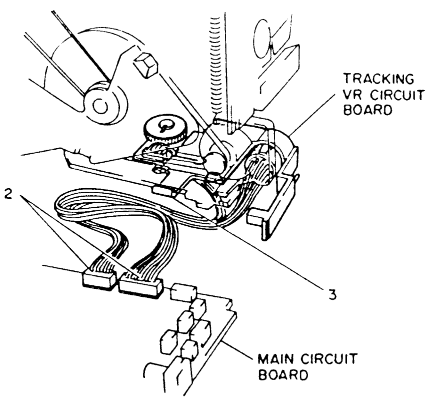

TRACKING VR CIRCUIT BOARD
2
3
MAIN CIRCUIT BOARD

Fig. 2-14

2-3. Process Circuit Board Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect two (2) connectors (CN102, CN103). (See Fig. 2-15)
3. Disconnect connector CN101.
4. Disconnect five (5) connectors (CN002, CN003, CN003, CN4A, CN6A). (See Fig. 2-16)
5. Release three (3) tabs holding the process circuit board and remove the process circuit board in the direction of the arrow.

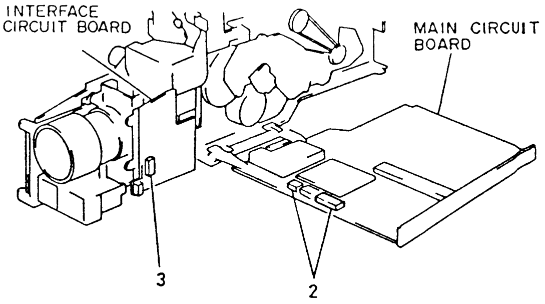

INTERFACE CIRCUIT BOARD
MAIN CIRCUIT BOARD
3
2

Fig. 2-15

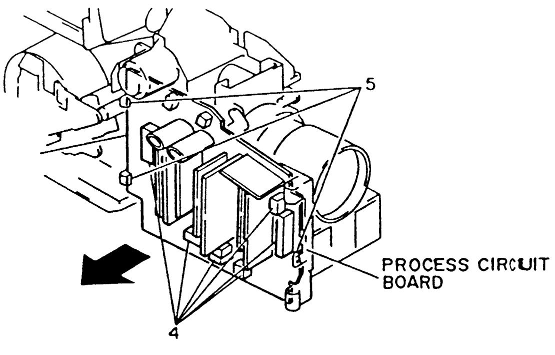

5
PROCESS CIRCUIT BOARD
4

Fig. 2-16

2-4. Interface Circuit Board Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN412. (See Fig. 2-17)

3. Disconnect four (4) connectors (CN001, CN101, CN413, CN5A).
4. Release three (3) tabs holding the interface circuit board.

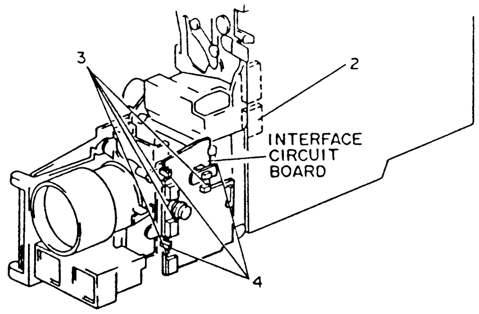

3
2
INTERFACE CIRCUIT BOARD
4

Fig. 2-17

2-5. EVF Connector Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the process circuit board. (See Figs. 2-15, 2-16)
3. Disconnect connector CN404. (See Fig. 2-18)
4. Remove three (3) screws holding the process circuit board holder. (See Fig. 2-19)

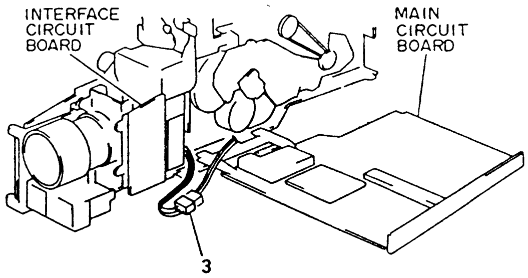

INTERFACE CIRCUIT BOARD
MAIN CIRCUIT BOARD
3

Fig. 2-18

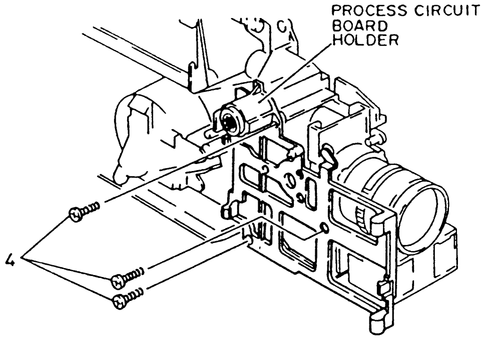

PROCESS CIRCUIT BOARD HOLDER
4

Fig. 2-19

2-6. Sensor Circuit Board Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the process circuit board. (See Figs. 2-15, 2-16)
3. Remove the interface circuit board. (See Fig. 2-17)
4. Remove the EVF connector. (See Figs. 2-18, 2-19)
5. Remove two (2) screws and take out the camera section. (See Fig. 2-20)
6. Remove two (2) screws holding the interface circuit board holder. (See Fig. 2-21)
7. Remove one (1) screw and take out the sensor shield cover in the direction of the arrow. (See Fig. 2-22)
8. Remove two (2) screws and take out the sensor circuit board. (See Fig. 2-23)

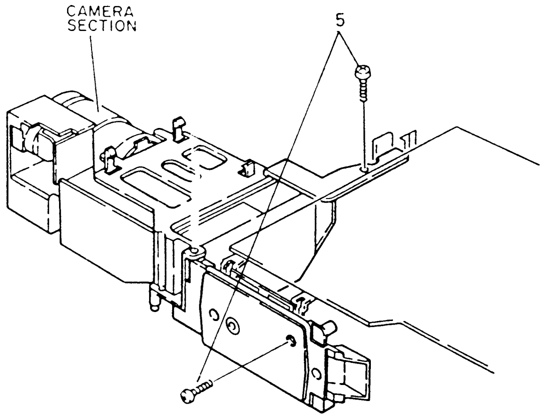

CAMERA SECTION
5

Fig. 2-20

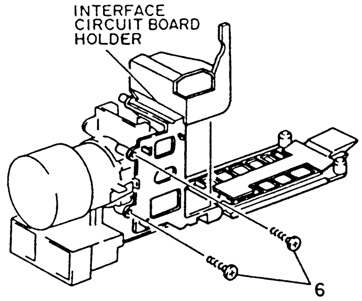

INTERFACE CIRCUIT BOARD HOLDER
6

Fig. 2-21

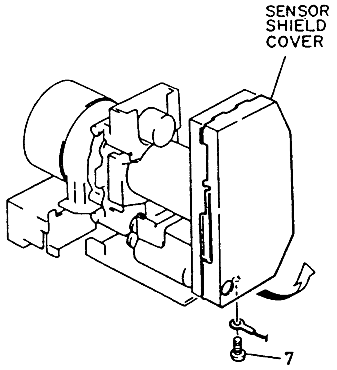

SENSOR SHIELD COVER
7

Fig. 2-22

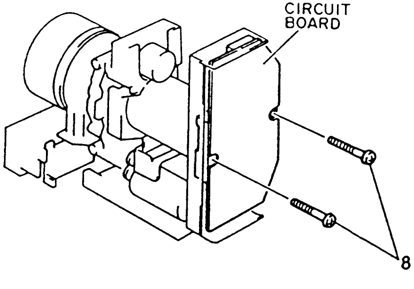

SENSOR CIRCUIT BOARD
8

Fig. 2-23

TAPE TRANSPORT MECHANISM - TOP VIEW
(Fig. 2-25)

TAPE TRANSPORT MECHANISM IDENTIFICATION - TOP VIEW (Fig. 2-25)

1. Catcher Block
2. Full Erase (FE) Head
3. Cylinder Brush
4. Upper Cylinder (Video Head)
5. Guide Pole
6. Audio/Control (A/C) Head
7. Dew Sensor
8. Pressure Roller
9. Capstan Motor
10. Take-up End Sensor
11. Guide Arm Assembly
12. Take-up Sub Brake
13. Take-up Reel Disk
14. End Lamp
15. Take-up Guide Roller
16. Supply Reel Disk
17. Tension Band
18. Supply Sub Brake
19. Tension Arm
20. Supply Guide Roller
21. Supply End Sensor
22. Impedance Roller

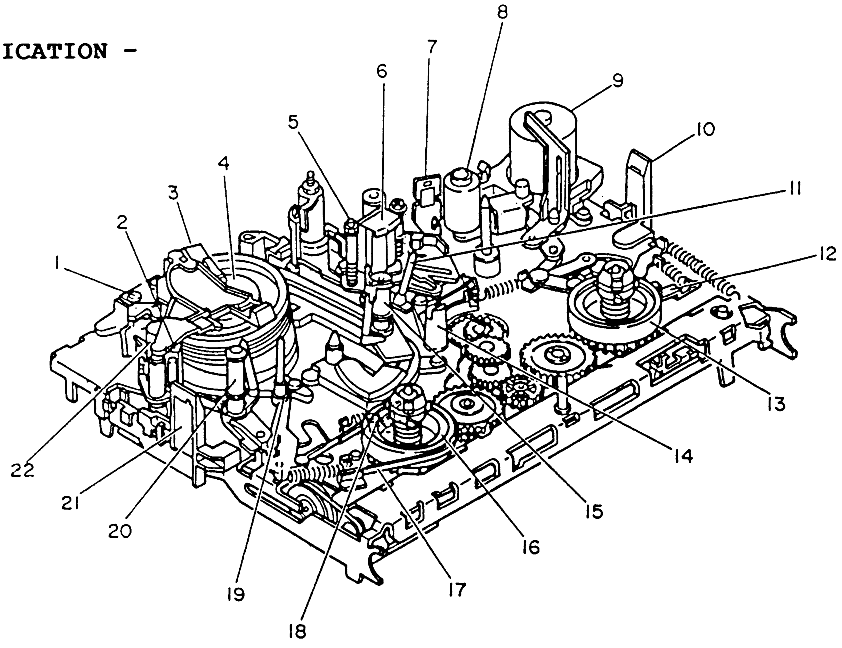


Fig. 2-25

TAPE TRANSPORT MECHANISM - BOTTOM VIEW
(Fig. 2-26)

TAPE TRANSPORT MECHANISM IDENTIFICATION - BOTTOM VIEW (Fig. 2-26)

1. Capstan Flywheel
2. Cam Gear Plate
3. A/C Head Control Arm
4. Lower Cylinder
   (Cylinder Motor Assembly)
5. Mechanism State Switch
6. Supply Loading Cam Gear
7. Take-up Loading Cam Gear
8. Loading Motor
9. Cam Gear Arm
10. Slider
11. Main Brake Arm
12. Reel Gear Block
13. PB/REC Drive Arm
14. Damper
15. Up Slider

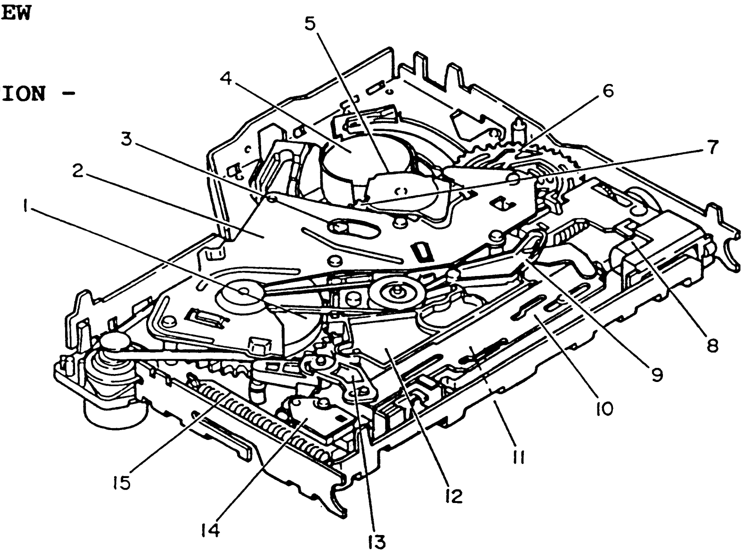


Fig. 2-26

3. TAPE TRANSPORT MECHANISM

Remove all the covers as previously given.

3-1. Separating the VTR Section and CAMERA Section

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect five (5) connectors (CN102, CN103, CN404, CN412, CN911). (See Fig. 2-27)
3. Remove two (2) screws holding the VTR section and camera section. (See Fig. 2-28)

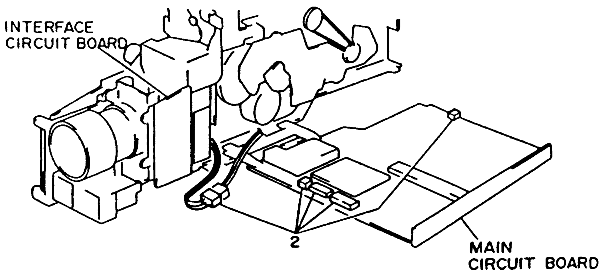


Fig. 2-27

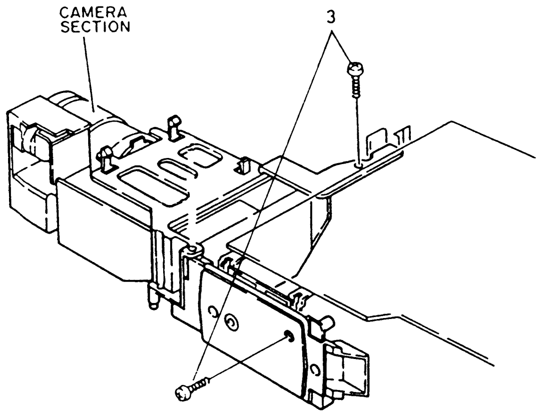


Fig. 2-28

3-2. Tape Transport Mechanism Removal

1. Remove the main circuit board. (See Figs, 2-11, 2-12, 2-13)
2. Separate the VTR section and camera section. (See Figs. 2-27, 2-28)

3-3. Cassette Holder Removal

1. Separate the VTR section and camera section. (See Figs. 2-27, 2-28)
2. Remove one (1) screw holding the safety tab switch. (See Fig. 2-29)
3. Release one (1) tab and lift up the cassette holder.
4. Remove the cassette holder spring. (See Fig. 2-30)
5. Remove two (2) screws holding the cassette holder. (See Figs. 2-30, 2-31)
6. Move the front arm in the direction of arrow (A). (See Figs. 2-32, 2-33)
7. Move the rear arm in the direction of arrow (B).

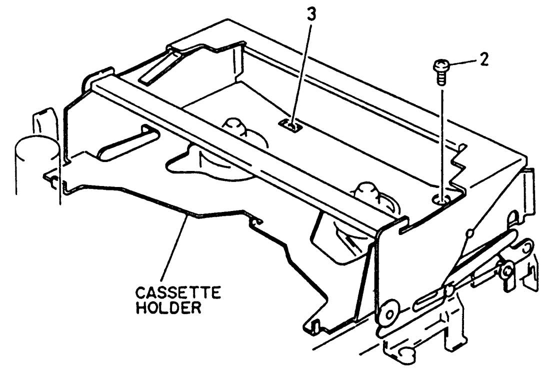


Fig. 2-29

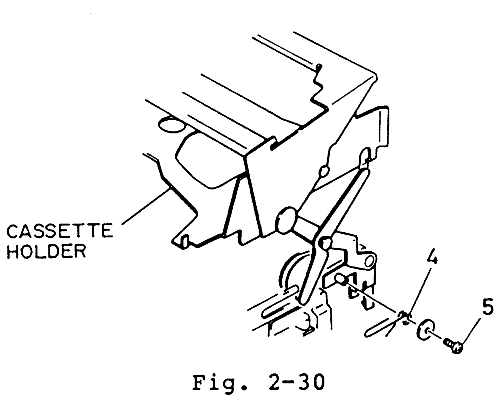


Fig. 2-30

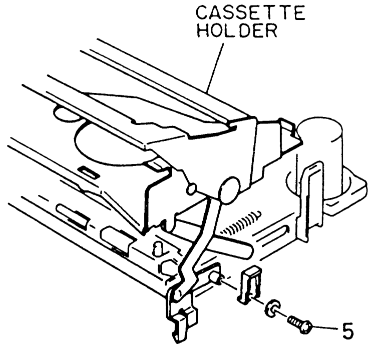


Fig. 2-31

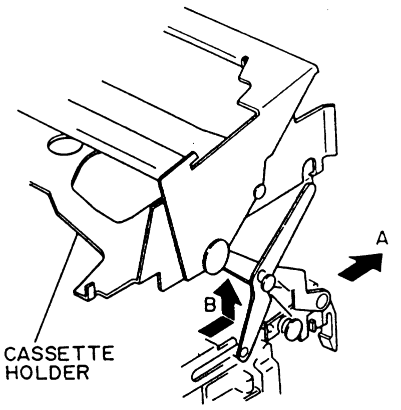


Fig. 2-32

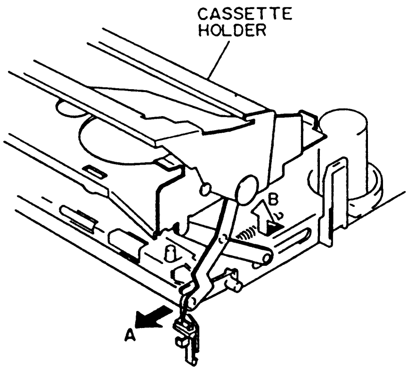


Fig. 2-33

3-4. Upper Cylinder (Video Head) Removal

1. Remove one (1) screw holding the cylinder brush. (See Fig. 2-34)
2. Remove two (2) screws holding the cylinder damper.
3. Remove two (2) screws holding the upper cylinder.
4. Unsolder eight (8) leads on the upper cylinder and pull out the upper cylinder. (See Fig. 2-35)

Note: Be careful that your fingers or tools do not touch the video head tips during work. Install the video head by the reverse procedure to removal. Tighten two (2) video head holding screws alternately. Adjust as follows after installing the video head.

* Tracking Preset Adjustment
* Audio/Control Head Adjustment
* Head Switching Point Adjustment
* Record Chroma Level Adjustment
* Record Luminance Level Adjustment

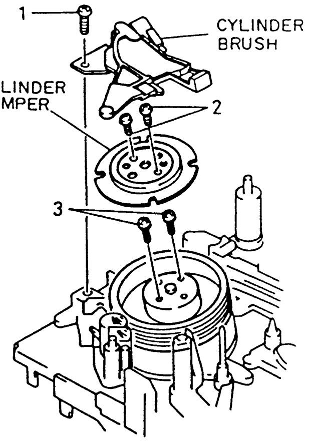

1
CYLINDER BRUSH
CYLINDER DAMPER
2
3

Fig. 2-34

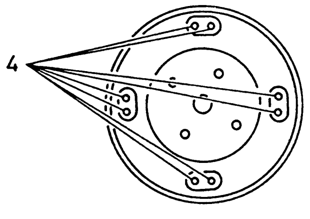


Fig. 2-35

3-5. Audio/Control (A/C) Head Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN415. (See Fig. 2-36)
3. Release the wires from the wire holder. (See Fig. 2-37)
4. Remove three (3) screws holding the A/C head.

Note: Perform the following adjustments after installing the A/C head.
* Audio/Control Head Adjustment

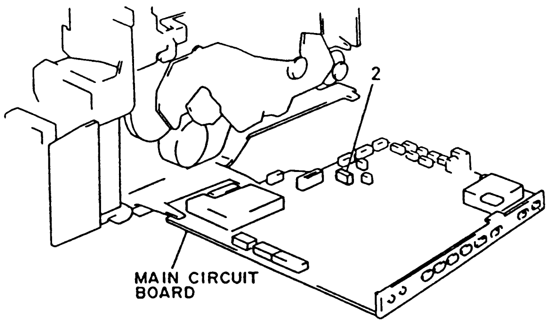

2
MAIN CIRCUIT BOARD

Fig. 2-36

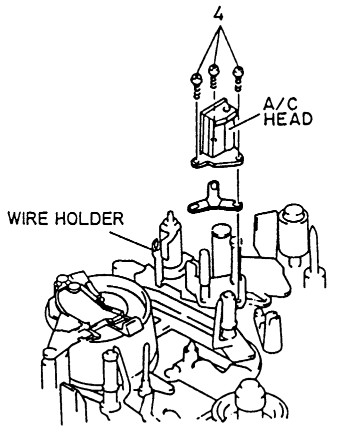

4
A/C HEAD
WIRE HOLDER

Fig. 2-37

3-6. Full Erase (FE) Head Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN416. (See Fig. 2-38)
3. Remove one (1) screw holding the cylinder shield. (See Fig. 2-39)
4. Release the spring between the FE head base and chassis.
5. Remove one (1) nut and pull out the FE head base.
6. Remove one (1) screw at the back of the FE head base.

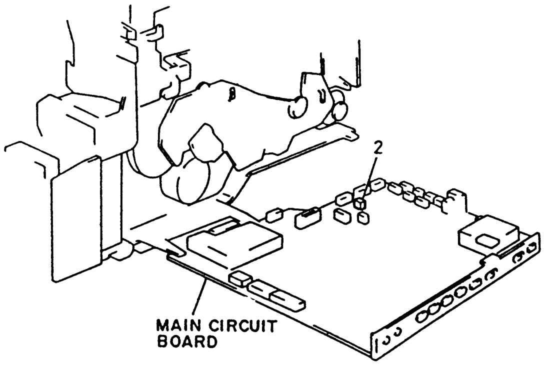

2
MAIN CIRCUIT BOARD

Fig. 2-38

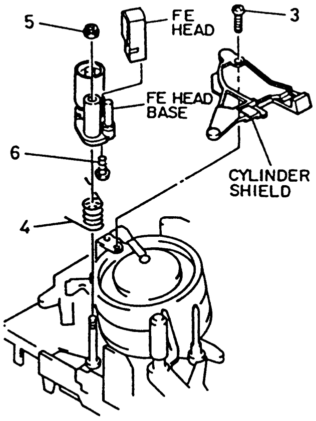

5
FE HEAD
3
FE HEAD BASE
6
CYLINDER SHIELD
4

Fig. 2-39

3-7. Supply End Sensor and Take-up End Sensor Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Separate the VTR section and camera section. (See Figs. 2-27, 2-28)
3. Disconnect connector CN909. (See Fig. 2-40)
4. Release one (1) tab and remove the take-up end sensor in the direction of the arrow. (See Fig. 2-41)
5. Release one (1) tab and remove the supply end sensor in the direction of the arrow. (See Fig. 2-42)

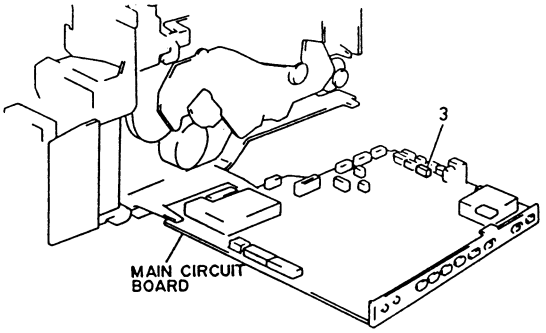

3
MAIN CIRCUIT BOARD

Fig. 2-40

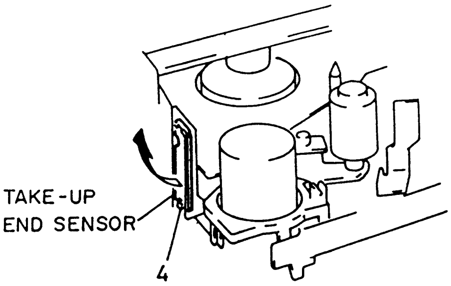

TAKE-UP END SENSOR
4

Fig. 2-41

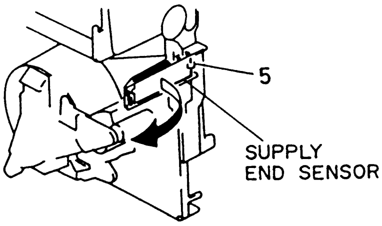

5
SUPPLY END SENSOR

Fig. 2-42

3-8. Dew Sensor Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN905. (See Fig. 2-43)
3. Remove one (1) screw holding the dew sensor. (See Fig. 2-44)

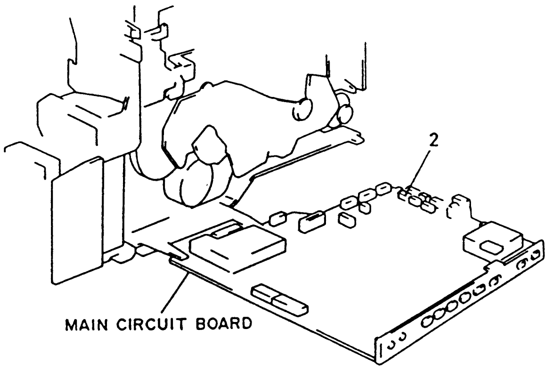

2
MAIN CIRCUIT BOARD

Fig. 2-43

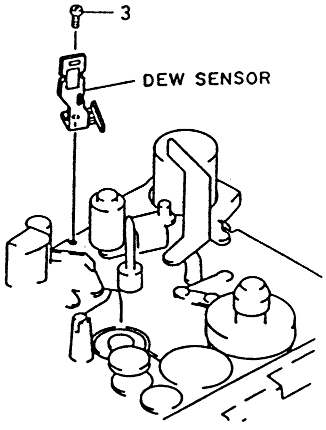

3
DEW SENSOR

Fig. 2-44

3-9. Safety Tab Switch and End Lamp Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Left up the cassette holder. (See Fig. 2-29)
3. Disconnect connector CN908. (See Fig. 2-45)
4. Remove the wires form the wire retainers.
5. Remove one (1) screw holding the safety tab switch. (See Fig. 2-46)
6. Remove the spring between the chassis and end lamp. (See Fig. 2-47)
7. Remove one (1) screw holding the end lamp.

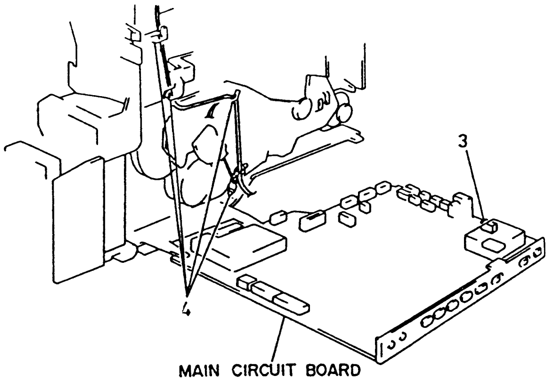

3
4
MAIN CIRCUIT BOARD

Fig. 2-45

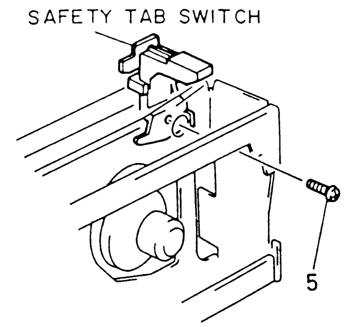

SAFETY TAB SWITCH
5

Fig. 2-46

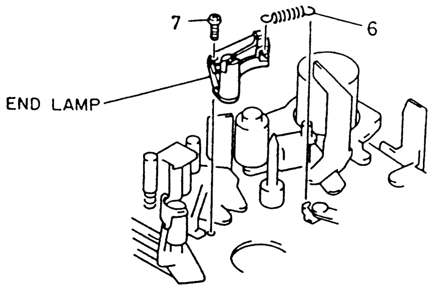


Fig. 2-47

3-10. Mechanism State Switch Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN907. (See Fig. 2-48)
3. Release the wires from the wire retainer. (See Fig. 2-49)
4. Remove one (1) screw holding the mechanism state switch.

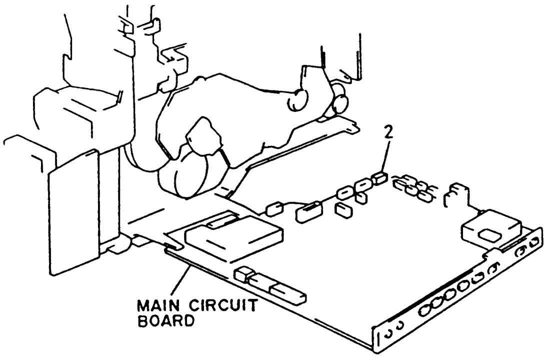

2
MAIN CIRCUIT BOARD

Fig. 2-48

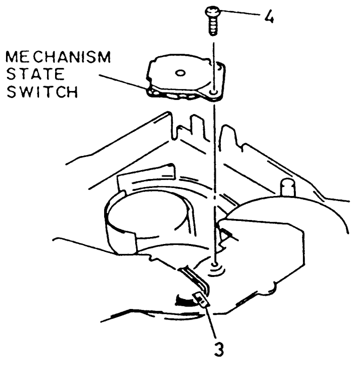

4
MECHANISM STATE SWITCH
3

Fig. 2-49

3-11. Lower Cylinder (Cylinder Motor Assembly) Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the upper cylinder. (See Figs. 2-34, 2-35)
3. Disconnect two (2) flat cables (CN612, CN613). (See Fig. 2-50)
4. Remove three (3) screws holding the lower cylinder. (See Fig. 2-51)

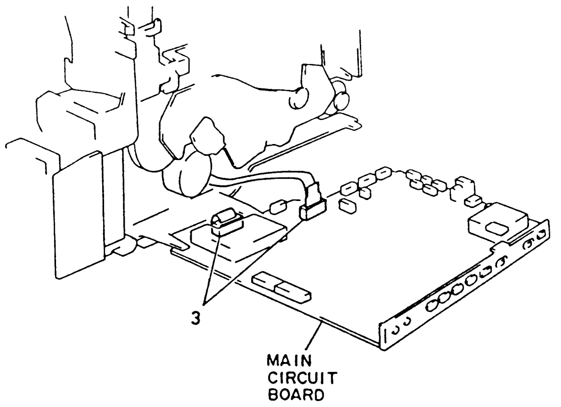

3
MAIN CIRCUIT BOARD

Fig. 2-50

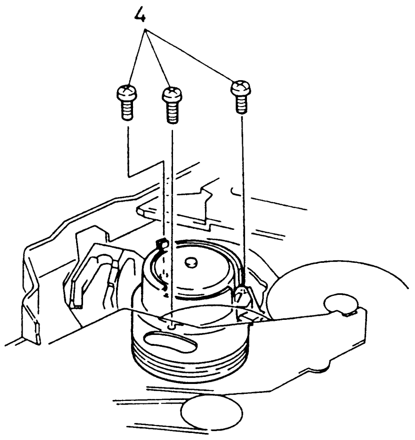


Fig. 2-51

3-12. Capstan Motor Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Lift up the cassette holder. (See Fig. 2-30)
3. Disconnect connector CN612. (See Fig. 2-52)
4. Remove the belt cover. (See Fig. 2-53)
5. Remove the belt from the capstan motor pulley.
6. Remove two (2) screws holding the capstan motor holder. (See Fig. 2-54)
7. Remove two (2) screws holding the capstan motor.

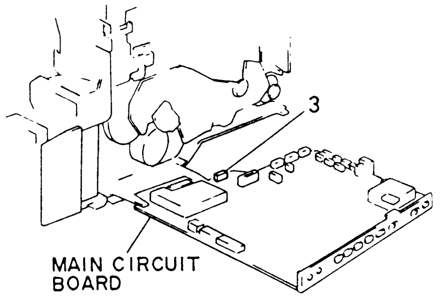

3
MAIN CIRCUIT BOARD

Fig. 2-52

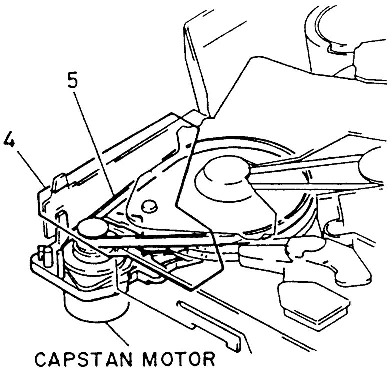

5
4
CAPSTAN MOTOR

Fig. 2-53

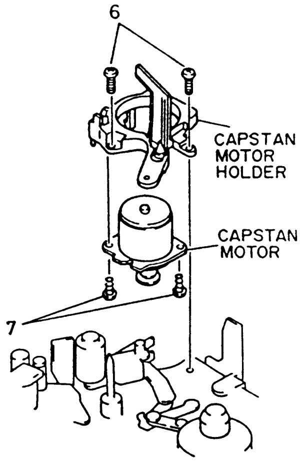

6
CAPSTAN MOTOR HOLDER
CAPSTAN MOTOR
7

Fig. 2-54

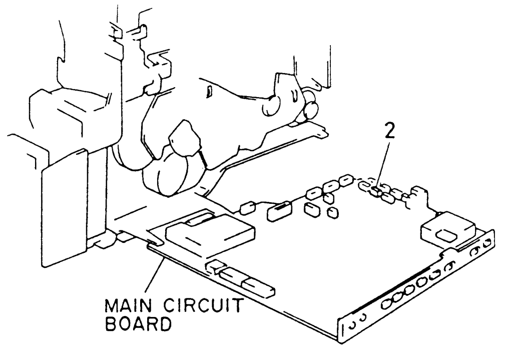

2
MAIN CIRCUIT BOARD

Fig. 2-55

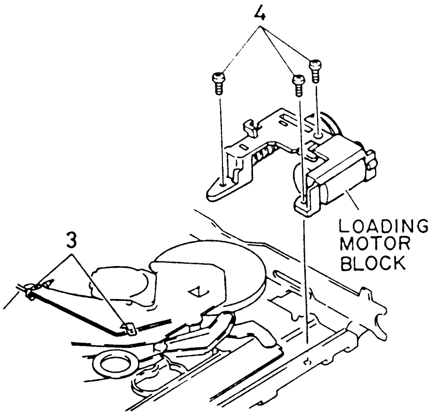

4
LOADING MOTOR BLOCK
3

Fig. 2-56

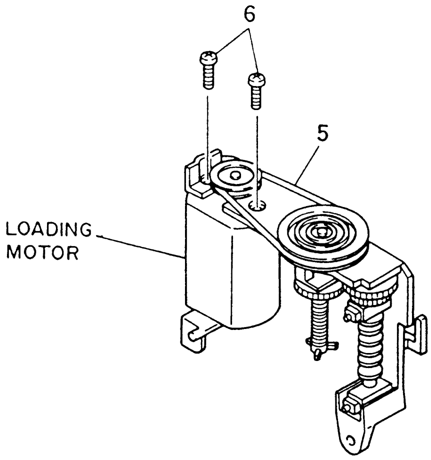

6
5
LOADING MOTOR

Fig. 2-57

3-13. Loading Motor Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Disconnect connector CN906. (See Fig. 2-55)
3. Remove the wires from the wire retainers. (See Fig. 2-56)
4. Remove three (3) screws holding the loading motor block.
5. Remove the belt of the loading motor. (See Fig. 2-57)
6. Remove two (2) screws holding the loading motor.

3-14. Catcher Block Removal

1. Remove one (1) screw holding the cylinder brush. (See Fig. 2-58)
2. Remove three (3) screws holding the catcher block.
3. Remove three (3) screws holding the cylinder assembly. (See Fig. 2-59)

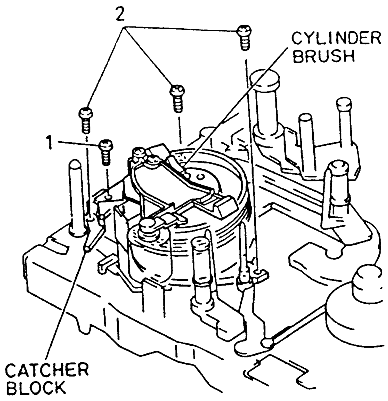

2
CYLINDER BRUSH
1
CATCHER BLOCK

Fig. 2-58

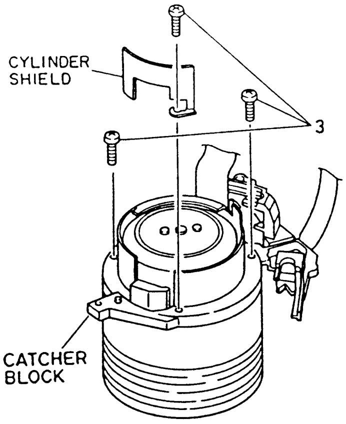

CYLINDER SHIELD
3
CATCHER BLOCK

Fig. 2-59

3-15. Impedance Roller Removal

1. Remove the cylinder brush. (See Fig. 2-58)
2. Remove one (1) nut and pull out the impedance roller. (See Fig. 2-60)

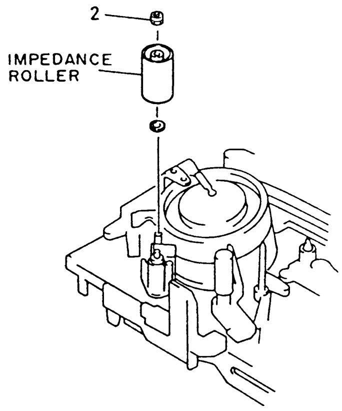

2
IMPEDANCE ROLLER

Fig. 2-60

3-16. Pressure Roller Arm Removal

1. Remove the capstan motor holder. (See Figs. 2-52, 2-53, 2-54)
2. Pull out the pressure roller arm. (See Fig. 2-61)

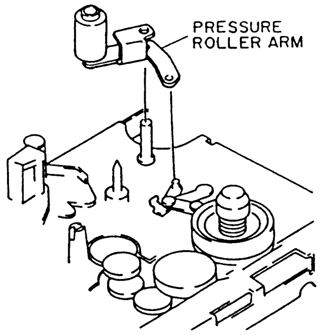

PRESSURE ROLLER ARM

Fig. 2-61

3-17. Tension Arm and Tension Band Removal

1. Remove the cassette holder. (See Figs. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Remove one (1) washer. (See Fig. 2-62)
3. Release the tension spring.
4. Remove one (1) screw holding the tension arm and tension band.

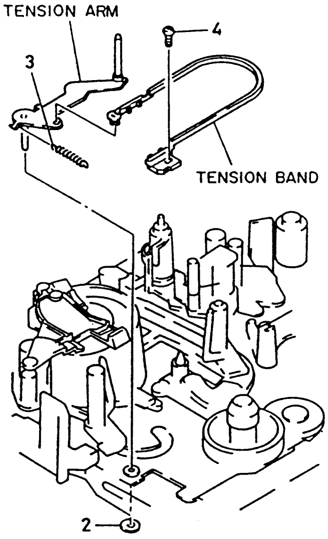

TENSION ARM
4
3
TENSION BAND
2

Fig. 2-62

3-18. Take-up Sub Brake Removal

1. Remove the cassette holder. (See Figs. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Remove the take-up sub brake spring. (See Fig. 2-63)
3. Release one (1) tab.
4. Pull out the take-up sub brake.

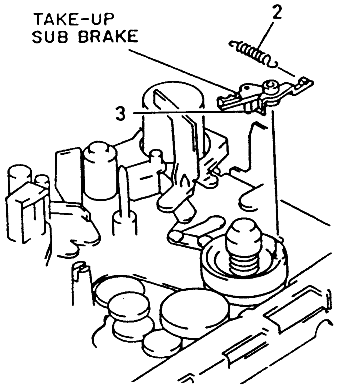

TAKE-UP SUB BRAKE
2
3

Fig. 2-63

3-19. Supply Sub Brake Removal

1. Remove the cassette holder. (See Figs. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Remove the supply sub brake spring. (See Fig. 2-64)
3. Release one (1) tab.
4. Pull out the supply sub brake.

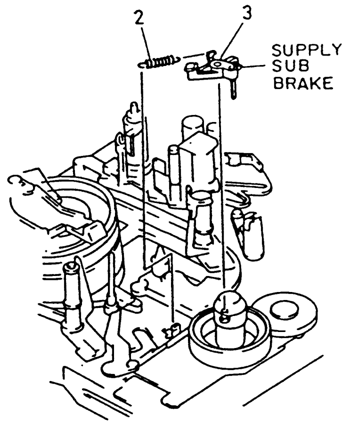

2
3
SUPPLY SUB BRAKE

Fig. 2-64

3-20. Take-up Reel Disk Removal

1. Remove the cassette holder. (See Figs. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Remove one (1) washer and pull out the take-up reel disk. (See Fig. 2-65)

Note: Take care not to lose the washer in the lower section.

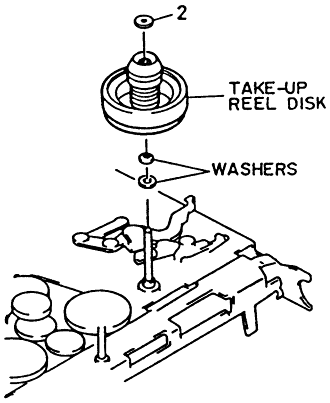

2
TAKE-UP REEL DISK
WASHERS

Fig. 2-65

3-21. Supply Reel Disk Removal

1. Remove the cassette holder. (See Figs. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Remove the tension arm and tension band. (See Fig. 2-62)
3. Remove the supply sub brake. (See Fig. 2-64)
4. Remove one (1) washer and pull out the supply reel disk. (See Fig. 2-66)

Note: Take care not to lose the washer in the lower section.
Reinstall the supply reel disk by the reverse procedure to removal.

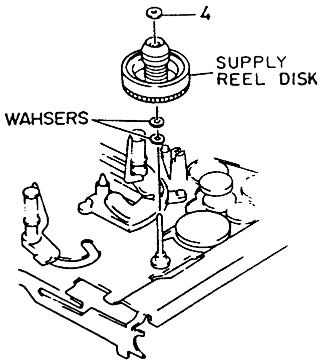

4
SUPPLY REEL DISK
WAHSERS

Fig. 2-66

3-22. Guide Pole (1) and Guide Pole (2) Removal

1. Remove one (1) nut holding the guide pole (1). (See Fig. 2-67)
2. Remove one (1) nut holding the guide pole (2).

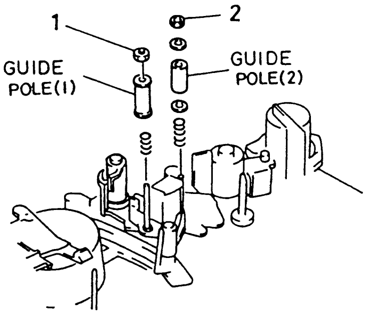

1
2
GUIDE POLE(1)
GUIDE POLE(2)

Fig. 2-67

3-23. A/C Head Base and Guide Arm Assembly Removal

1. Remove the A/C head. (See Figs. 2-36, 2-37)
2. Remove one (1) nut and remove the A/C head base together with the washers and spring. (See Fig. 2-68)
3. Remove one (1) washer and pull out the guide arm assembly.

Note: After reinstalling, adjust the A/C head.

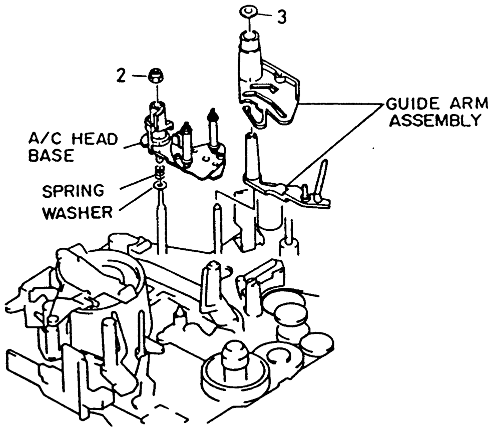

3
2
GUIDE ARM ASSEMBLY
A/C HEAD BASE
SPRING
WASHER

Fig. 2-68

3-24. Supply Guide Roller and Take-up Guide Roller Removal

1. Remove one (1) hex screw holding the supply guide roller. (See Fig. 2-69)
2. Turn the upper section of the supply guide roller using a hexagonal wrench to remove the supply guide roller from the supply guide roller base.
3. Remove the guide roller cap.
4. Remove one (1) hex screw holding the take-up guide roller.
5. Turn the upper section of the take-up guide roller using a hexagonal wrench to remove the take-up guide roller from the take-up guide roller base.

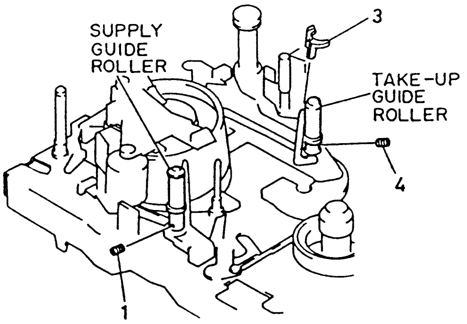


Fig. 2-69

3-25. Cam Gear Plate Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Release the wires from the wire retainers. (See Fig. 2-70)
4. Remove the belt cover.
5. Remove five (5) screws holding the cam gear plate.

Note: When reinstalling, tighten all the screws and then loosen them by 3/4 turns.

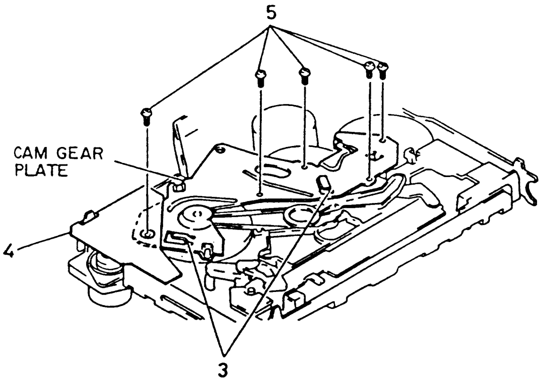


Fig. 2-70

3-26. Capstan Flywheel Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove two (2) belts from the capstan flywheel. (See Fig. 2-71)
5. Remove one (1) washer and pull out the capstan flywheel.

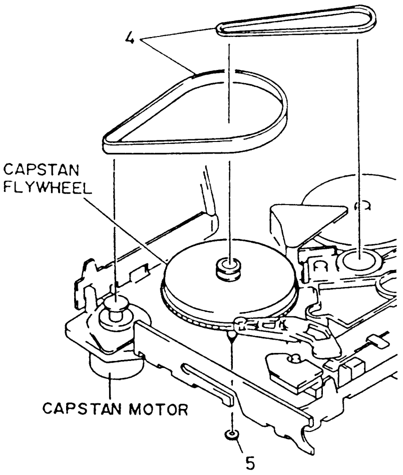


Fig. 2-71

3-27. A/C Head Operation Arm Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Pull out the A/C head operation arm. (See Fig. 2-72)

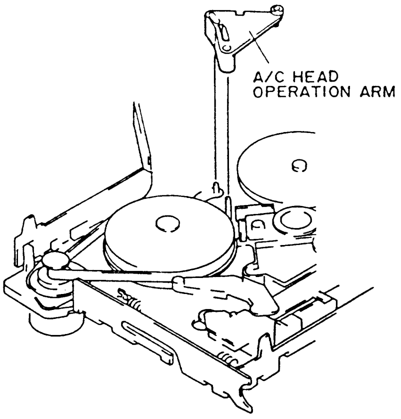


Fig. 2-72

3-28. PB/REC Drive Arm Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove one (1) washer and pull out the PB/REC drive arm. (See Fig. 2-73)

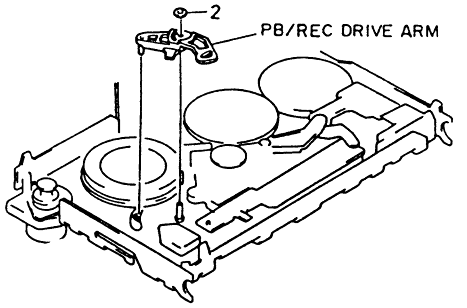

2
PB/REC DRIVE ARM

Fig. 2-73

3-29. Cam Gear Arms (1) and (2) Removal

1. Open the main circuit board.
   (See Fig. 2-11)
2. Remove the mechanism state switch.
   (See Figs. 2-48, 2-49)
3. Remove the cam gear plate.
   (See Fig. 2-70)
4. Release one (1) tab and remove the idler operation arm.
   (See Fig. 2-74)
5. Pull out the cam gear arms (1) and (2).

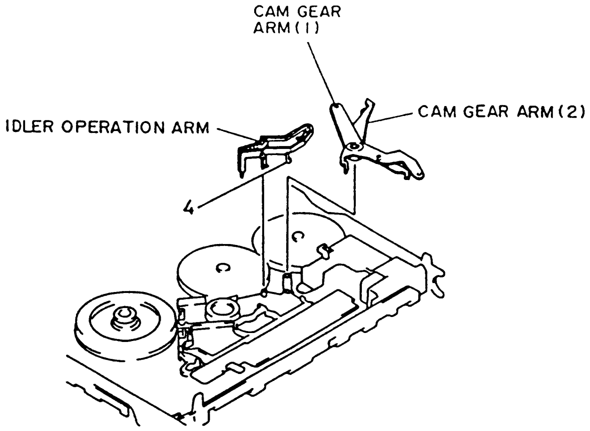

CAM GEAR ARM(1)
CAM GEAR ARM(2)
IDLER OPERATION ARM
4

Fig. 2-74

3-30. Supply and Take-up Loading Cam Gears Removal

1. Open the main circuit board.
   (See Fig. 2-11)
2. Remove the mechanism state switch.
   (See Figs. 2-48, 2-49)
3. Remove the loading motor block.
   (See Figs. 2-55, 2-56)
4. Remove the cam gear plate.
   (See Fig. 2-70)
5. Remove the A/C head operation arm.
   (See Fig. 2-72)
6. Remove the cam gear arms (1) and (2).
   (See Fig. 2-74)
7. Turn the loading cam gear to set the guide roller to the loading state.
   (See Fig. 2-75)
8. Remove one (1) E ring.
   (See Fig. 2-76)
9. Remove two (2) E rings and pull out the loading cam gears.
   (See Fig. 2-75)

Note: After reinstalling the loading cam gears, adjust the mechanism state switch.

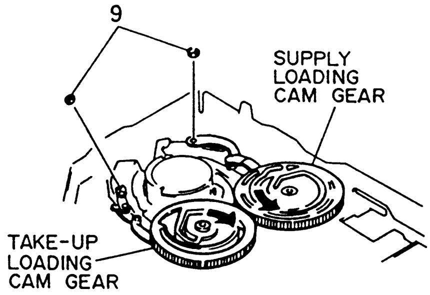

9
SUPPLY LOADING CAM GEAR
TAKE-UP LOADING CAM GEAR

Fig. 2-75

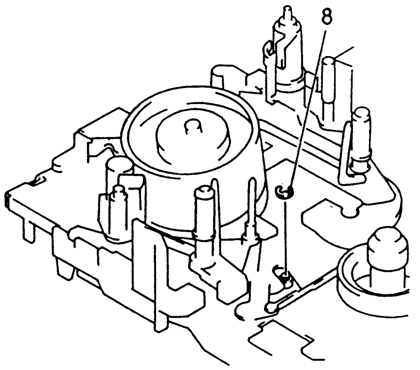


Fig. 2-76

3-31. Supply and Take-up Guide Roller Bases Removal

1. Open the main circuit board.
   (See Fig. 2-11)
2. Remove the mechanism state switch.
   (See Figs. 2-48, 2-49)
3. Remove the loading motor block.
   (See Figs. 2-55, 2-56)
4. Remove the cam gear plate.
   (See Fig. 2-70)
5. Remove the cam gear arms (1) and (2).
   (See Fig. 2-74)
6. Remove the loading cam gear.
   (See Figs. 2-75, 2-76)
7. Remove one (1) screw holding the limit plate and supply guide roller base.
   (See Fig. 2-77)
8. Remove one (1) screw holding the limit plate and take-up guide roller base.

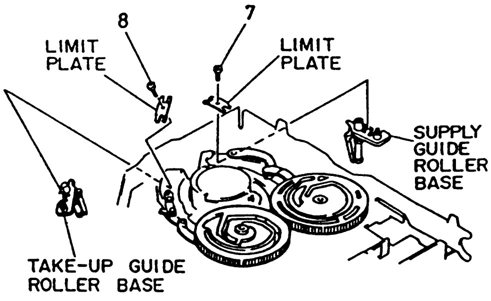

8
7
LIMIT PLATE
LIMIT PLATE
SUPPLY GUIDE ROLLER BASE
TAKE-UP GUIDE ROLLER BASE

Fig. 2-77

3-32. Slider Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove the PB/REC drive arm. (See Fig. 2-73)
5. Remove the cam gear arms (1) and (2). (See Fig. 2-74)
6. Remove one (1) screw and one (1) washer holding the slider. (See Fig. 2-78)

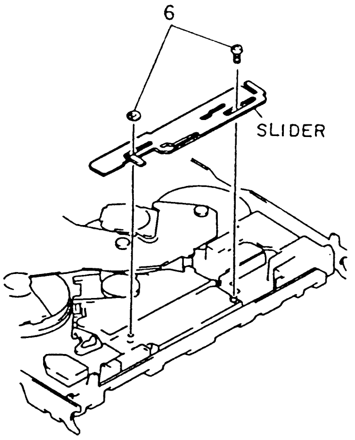


Fig. 2-78

3-33. Reel Gear Block Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove the PB/REC drive arm. (See Fig. 2-73)
5. Remove the cam gear arms (1) and (2). (See Fig. 2-74)
6. Remove the slider. (See Fig. 2-78)
7. Remove the belt from the reel gear block. (See Fig. 2-79)
8. Remove three (3) screws holding the reel gear block.

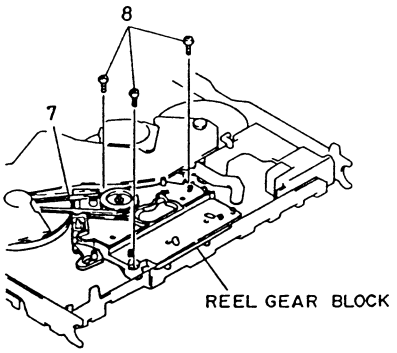


Fig. 2-79

3-34. Main Brake Arm Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove the PB/REC drive arm. (See Fig. 2-73)
5. Remove the cam gear arms (1) and (2). (See Fig. 2-74)
6. Remove the slider. (See Fig. 2-78)
7. Remove the reel gear block. (See Fig. 2-79)
8. Pull out the main brake drive arm. (See Fig. 2-80)

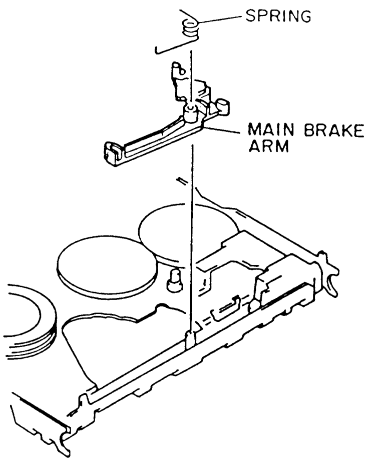


Fig. 2-80

3-35. Damper Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove one (1) screw holding the damper. (See Fig. 2-81)

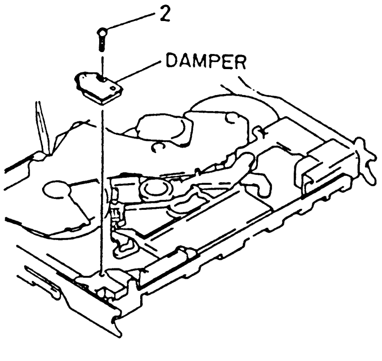


Fig. 2-81

3-36. Up Slider Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove the PB/REC drive arm. (See Fig. 2-73)
5. Remove the cam gear arms (1) and (2). (See Fig. 2-74)
6. Remove the slider. (See Fig. 2-78)
7. Remove the damper. (See Fig. 2-81)

8. Remove the up slider spring. (See Fig. 2-82)
9. Remove one (1) screw holding the lock holder.
10. Remove the up slider in the direction of the arrow.

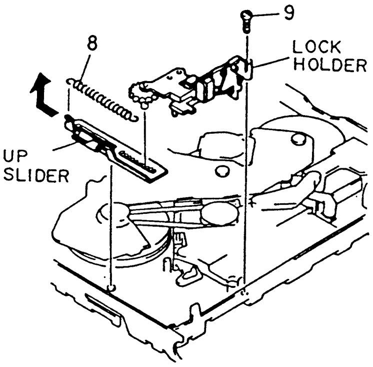


Fig. 2-82

3-37. Take-up Reel Sensor and Cassette Holder Switch Removal

1. Open the main circuit board. (See Fig. 2-11)
2. Remove the mechanism state switch. (See Figs. 2-48, 2-49)
3. Remove the cam gear plate. (See Fig. 2-70)
4. Remove the PB/REC drive arm. (See Fig. 2-73)
5. Remove the slider. (See Fig. 2-78)
6. Remove the damper. (See Fig. 2-81)
7. Remove the up slider. (See Fig. 2-82)
8. Disconnect connector CN904. (See Fig. 2-83)
9. Release the wires from the wire retainers.
10. Remove one (1) screw holding the cassette holder switch. (See Fig. 2-84)
11. Remove one (1) screw holding the take-up reel sensor.

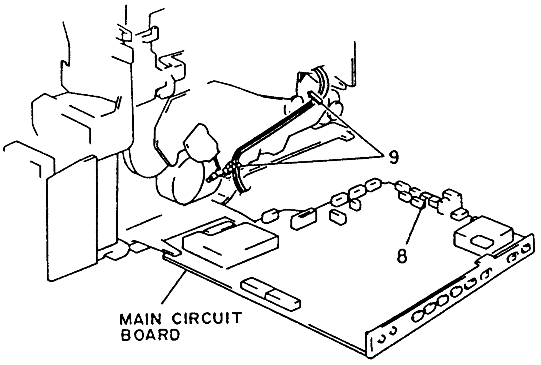


Fig. 2-83

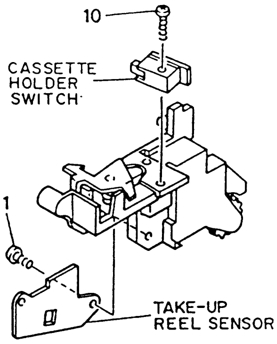


Fig. 2-84

4. LENS BLOCK

Remove all the covers as previously given.

4-1. Lens Block Removal

1. Remove the process circuit board. (See Figs. 2-15, 2-16)
2. Remove the interface circuit board. (See Fig. 2-17)
3. Disconnect the EVF connector. (See Figs. 2-18, 2-19)
4. Remove the sensor circuit board. (See Figs. 2-20, 2-21, 2-22, 2-23)
5. Remove two (2) screws and take out the shield case. (See Fig. 2-85)

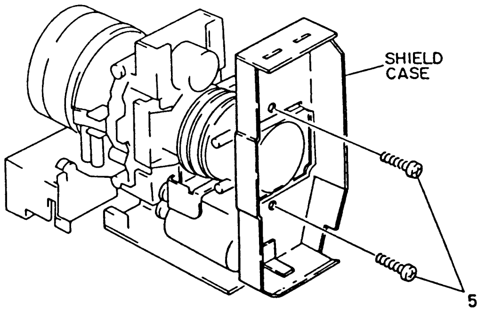


Fig. 2-85

4-2. Auto Focus Circuit Board Removal

1. Remove the lens block. (See Fig. 2-85)
2. Disconnect the connector CN1A and remove one (1) screw and open the auto focus circuit board. (See Fig. 2-86)
3. Disconnect two (2) connectors (CN2A, CN3A) and remove the auto focus circuit board. (See Fig. 2-87)

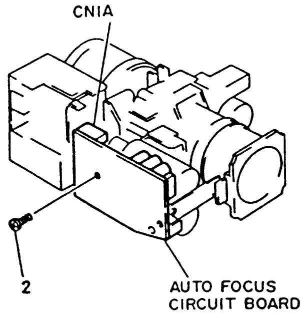


Fig. 2-86

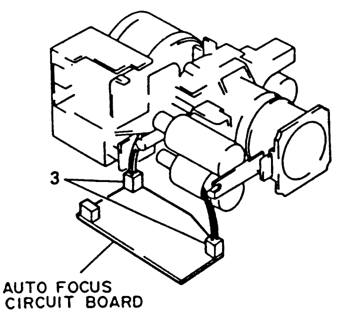

3
AUTO FOCUS
CIRCUIT BOARD

Fig. 2-87

4-3. Iris Motor Removal

1. Remove the lens block. (See Fig. 2-85)
2. Remove one (1) screw holding the iris motor. (See Fig. 2-88)

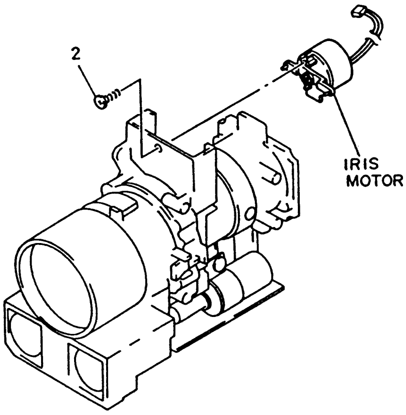

2
IRIS
MOTOR

Fig. 2-88

4-4. Zoom Motor Removal

1. Remove the lens block. (See Fig. 2-85)
2. Remove one (1) screw and pull out the zoom motor in the direction of the arrow. (See Fig. 2-89)

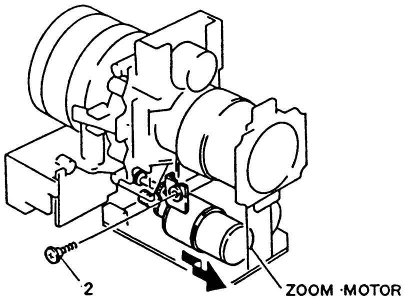

2
ZOOM MOTOR

Fig. 2-89

4-5. Auto Focus Motor Removal

1. Remove the lens block. (See Fig. 2-85)
2. Disconnect connector CN3A. (See Fig. 2-90)
3. Remove one (1) screw and pull out the auto focus motor in the direction of the arrow.

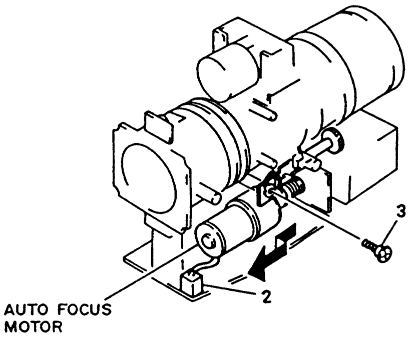

3
2
AUTO FOCUS
MOTOR

Fig. 2-90

5. ELECTRONIC VIEWFINDER (EVF)

Remove the EVF as previously given.

5-1. Bottom Cover Removal

1. Remove one (1) screw and take out the EVF cable holder. (See Fig. 2-91)
2. Remove two (2) screws holding the bottom cover.
3. Remove the bottom cover in the direction of the arrow.

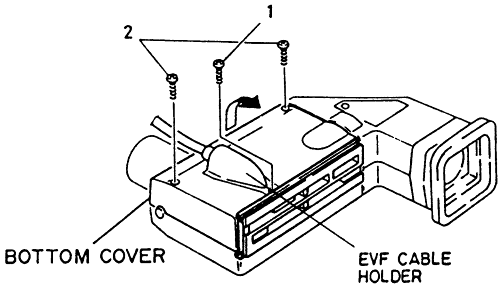

1
2
BOTTOM COVER
EVF CABLE
HOLDER

Fig. 2-91

5-2. Microphone Jack Removal

1. Remove the bottom cover. (See Fig. 2-91)
2. Lift up the microphone jack in the direction of the arrow. (See Fig. 2-92)
3. Disconnect connector CN830.

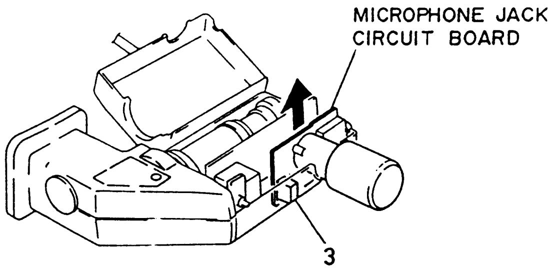

MICROPHONE JACK
CIRCUIT BOARD
3

Fig. 2-92

5-3. Electronic Viewfinder (EVF) Circuit Board Removal

1. Remove the bottom cover. (See Fig. 2-91)
2. Remove the microphone jack. (See Fig. 2-92)
3. Disconnect the CRT socket. (See Fig. 2-93)

4. Lift up the EVF circuit board in the direction of the arrow.
5. Disconnect two (2) connectors (CN801, CN802). (See Fig. 2-94)

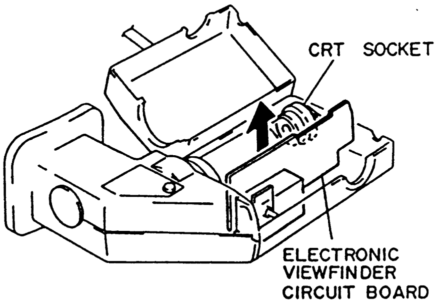

CRT SOCKET
ELECTRONIC VIEWFINDER CIRCUIT BOARD

Fig. 2-93

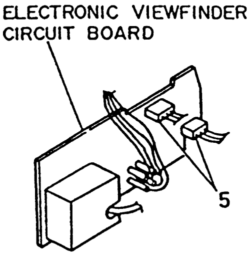

ELECTRONIC VIEWFINDER CIRCUIT BOARD
5

Fig. 2-94

5-4. CRT Removal

1. Remove the bottom cover. (See Fig. 2-91)
2. Remove the microphone jack. (See Fig. 2-92)
3. Remove the EVF circuit board. (See Figs. 2-93, 2-94)
4. Open the CRT cover in the direction of the arrow. (See Fig. 2-95)
5. Remove one (1) screw and take out the prism cover.
6. Remove the CRT assembly in the direction of the arrow. (See Fig. 2-96)

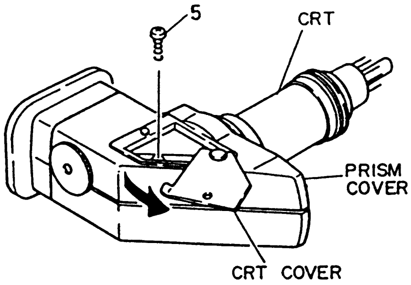

5
CRT
PRISM COVER
CRT COVER

Fig. 2-95

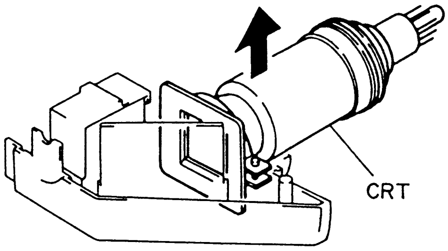
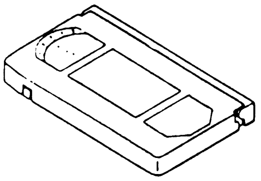
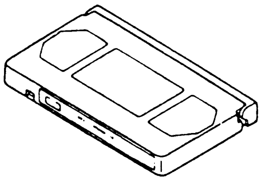
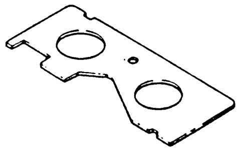
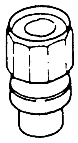
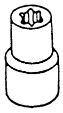
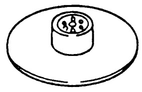
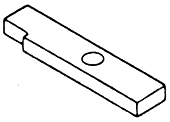
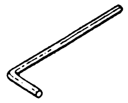
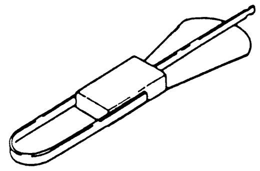
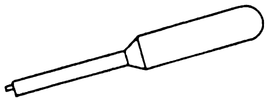
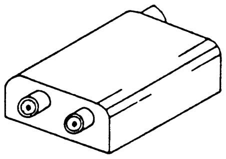
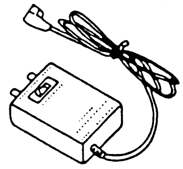
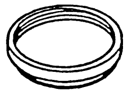


Fig. 2-96

SERVICING JIG AND TOOLS

1. Back Tension Meter (Parts No. 7099004) 	2. Alignment Tape (Parts No. 7099052) 	3. Master Plane (Parts No. 7099279) 	4. Torque Gauge (Parts No. 7099039) 
5. Torque Gauge Adapter (Parts No. 7099204) 	6. Dummy Reel (Parts No. 7099043) 	7. Reel Disk Height Jig (Parts No. 7099038) 	8. 1.5mm/0.9mm Hexagonal Wrench 
9. Fan Type Tension Gauge 	10. Back Focus Adjustment Driver (Parts No. 7099205) 	11. A/V Input Adapter (VM-CH20) 	12. RF Converter Unit (VM-RF50 or VM-RF20) 
13. Light Balancing Filter (Parts No. C2:7099225) (Parts No. C8:7099223) 			

CHAPTER 3 MECHANICAL ADJUSTMENT

1. MECHANISM STATE SWITCH ADJUSTMENT

1-1. LOADING CAM GEAR (SUPPLY/TAKE-UP) ADJUSTMENT (Fig. 3-1)

Be sure to perform this adjustment after replacing the Loading Cam Gears (Supply/Take-up), before adjusting the mechanism state switch.

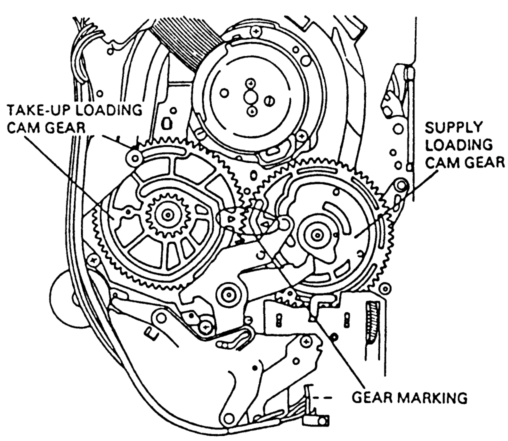


Fig. 3-1

1. Install the mechanism state switch so that the markings on the supply and take-up loading cam gears are aligned in the unloading·stop mode.

1-2. MECHANISM STATE SWITCH ADJUSTMENT (Fig. 3-2)

Be sure to perform this adjustment after replacing the mechanism state switch and loading cam gears (supply/take-up).

1. Align markings A and B at the back of the mechanism state switch.
2. Confirm that the markings on the supply and take-up cam gears are aligned when the unit is in the unloading·stop mode.
3. Install the mechanism state switch to the cam gear plate.
4. Confirm that the markings on the supply loading cam gear and cam gear plate are aligned in the stop mode after unloading.

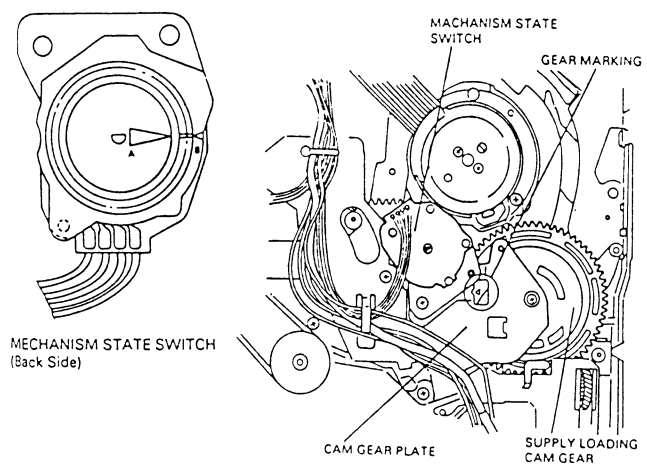

MACHANISM STATE SWITCH
GEAR MARKING
A
MECHANISM STATE SWITCH (Back Side)
CAM GEAR PLATE
SUPPLY LOADING CAM GEAR

Fig. 3-2

2. TAPE TRANSPORT SYSTEM COMPONENTS CHECK/ADJUSTMENT

The tape transport system is the path from the supply reel to the take-up reel via the video heads. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust and oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so when any transport components are replaced, the transport system is stabilized by correctly adjusting the new components.

2-1. REEL DISK HEIGHT ADJUSTMENT (Fig. 3-3)

1. Remove the cassette lid, left case and mount the master plane to the cassette holder.
2. Place a reel disk height jig on the master plane and fit it to the reel disk.
3. Check that the top of the reel disk is positioned between sections A and B of the reel disk height jig.
4. When the top of the reel disk is not positioned between section A and B, adjust the number of the spacers (2 types: 0.25 mm and 0.5 mm thick) at the bottom of the reel disk.

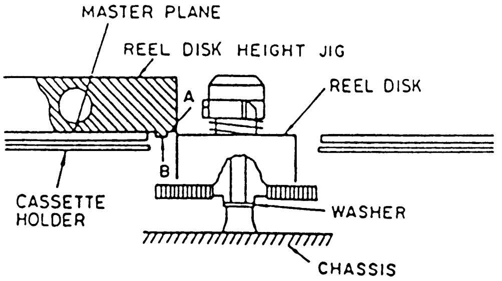

MASTER PLANE
REEL DISK HEIGHT JIG
A
REEL DISK
B
CASSETTE HOLDER
WASHER
CHASSIS

Fig. 3-3

2-2. TENSION POLE POSITION/TENSION ADJUSTMENT (Fig. 3-4)

Position Adjustment (Fig. 3-4)

1. Set the tension spring to position "C" on the spring holder.
2. Cover up the supply tape-sensor photocell located midway on the left side of the tape mechanism.
3. Place instrument in the "play" mode.
4. After loading is completed, loosen the screw holding the tension band holder. Then, slide the holder and adjust so that the clearance between section A of the supply end sensor holder and the tension arm is 1.4 to 2.0 mm.
5. Tighten screw to secure adjustment.

Tension Adjustment (Fig. 3-4)

1. Load the instrument with the back tension adjustment tape.
2. Place the instrument in the "play" mode.
3. Read the scale on the supply reel.
4. This reading should be between 27 and 38.
5. Move the tension arm spring to position "A" or "B" on the spring holder when the tension adjustment tape reads 39 or higher, and to position "D" or "E" on the spring holder when it is 26 or lower, and adjust the back tension for a nominal reading of 27 - 38 on the scale.
6. Recheck the tension arm position when the back tension is changed greatly (5 or more).

Note: The instrument must be in a horizontal position for this adjustment.

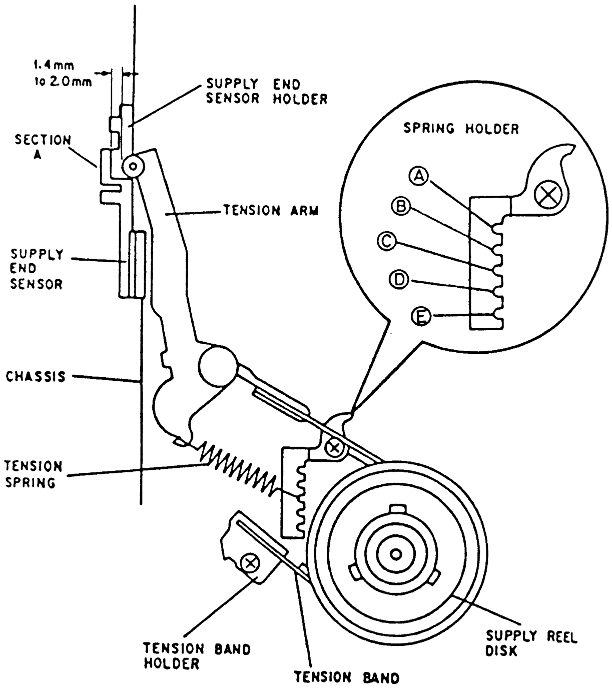

1.4mm to 2.0mm
SUPPLY END SENSOR HOLDER
SECTION A
SPRING HOLDER
A
B
C
D
E
TENSION ARM
SUPPLY END SENSOR
CHASSIS
TENSION SPRING
TENSION BAND HOLDER
TENSION BAND
SUPPLY REEL DISK

Fig. 3-4

2-3. FE GUIDE POLE HEIGHT ADJUSTMENT (Fig. 3-5)

1. Remove the cassette lid, left case and mount the master plane to the cassette holder.
2. Place a reel disk height jig on the master plane and fit it to the FE guide pole.

3. Turn the FE guide pole height adjusting nut so that the gap between the upper flange of the FE guide pole and top of the jig is 0.5 to 1.5 mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower flanges of the FE guide pole.

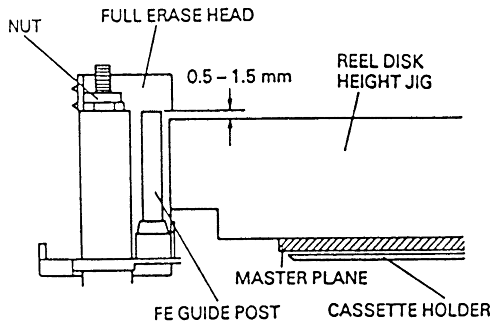

NUT
FULL ERASE HEAD
0.5 - 1.5 mm
REEL DISK HEIGHT JIG
MASTER PLANE
FE GUIDE POST
CASSETTE HOLDER

Fig. 3-5

2-4. TAKE-UP GUIDE POLE HEIGHT ADJUSTMENT (Fig. 3-6)

1. Remove the cassette lid, left case and mount the master plane to the cassette holder.
2. Place a reel disk height jig on the master plane and fit it to the take-up guide pole.
3. Turn the take-up guide pole height adjusting nut so that the gap between the upper flange of the take-up guide pole and the top of the jig is 0.1 mm ± 0.1 mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower flanges of the pole.

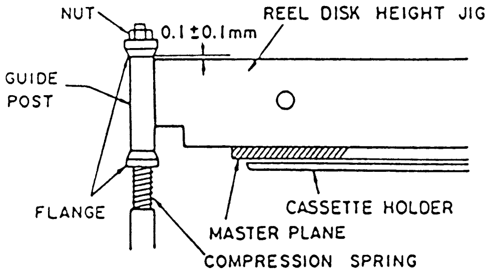

NUT
0.1±0.1mm
REEL DISK HEIGHT JIG
GUIDE POST
FLANGE
CASSETTE HOLDER
MASTER PLANE
COMPRESSION SPRING

Fig. 3-6

2-5. GUIDE ROLLER HEIGHT ADJUSTMENT (Figs. 3-7, 3-8)

1. Remove the cassette lid, left case and mount the master plane to the cassette holder.
2. Place a reel disk height jig on the master plane and fit it to the guide roller.
3. Tighten the guide roller fixing screw at the position where the upper flange of the guide roller and the top of the jig match.
4. Run the tape and check that the tape does not curl and ride over, and then perform the electrical adjustment.
5. Connect the oscilloscope to TP206 on the main board.
6. Playback the colour bar test tape and set the TRACKING control (RV101) to the click position.
7. Check that the FM waveform is flat.
8. Then check that the FM drops at the start and end of the envelope are equal when the TRACKING control is turned to the left and right.
9. When the FM drops at the start and end of the envelope are not equal, loosen the guide roller fixing screw, turn the guide roller a little to the left and right so that they are equal.
10. Tighten the fixing screw.

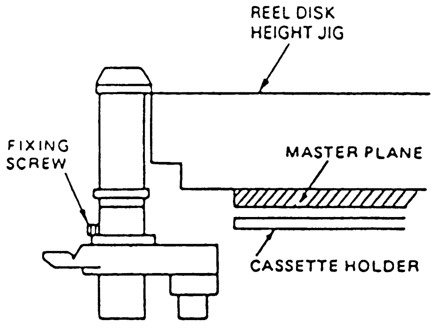
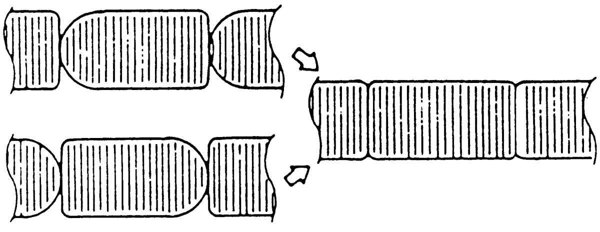

REEL DISK HEIGHT JIG
FIXING SCREW
MASTER PLANE
CASSETTE HOLDER

Fig. 3-7



Turn guide roller height adjustment screw a little at a time to flatten waveform.

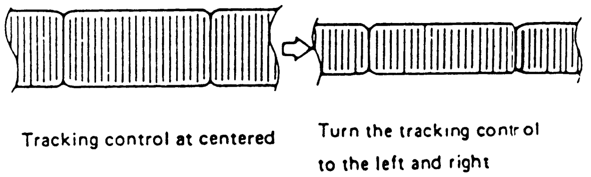

Tracking control at centered
Turn the tracking control to the left and right

Fig. 3-8

2-6. A/C HEAD ADJUSTMENT (Figs. 3-9, 3-10, 3-11)

Perform the height, tilt and azimuth adjustments repeatedly to determine the A/C head installation position, then adjust the X value.
Detailed adjustment below is the procedure when the A/C head is replaced; be sure to do precise adjustment after rough adjustment.

Rough Adjustment (Fig. 3-9)

1. Remove the cassette lid and left case before making adjustment.
2. Install the height reference plate in its proper position.

3. Adjust Azimuth Screw (B), Tilt Screw (C) and Screw (F) so the height difference between the height reference plate and A/C head base (1) is 0.4 mm and A/C head bases (1) and (2) are parallel.

Precise Adjustment (Figs. 3-9, 3-10)

4. Connect the oscilloscope to audio out on the main board.
5. Playback a 6 kHz audio signal on alignment tape.
6. Adjust Azimuth Screw (B) and Tilt Screw (C) for maximum output.

X Value Adjustment (Figs. 3-9, 3-11)

7. Connect the oscilloscope to TP206 on the main board.
8. Trigger the oscilloscope at SW25Hz. (Use TP205 on the main board)
9. Set the TRACKING control (RV101) to the click (fixed) position.
10. Loosen two (2) screws (D and E).
11. Playback a 6 kHz audio signal on alignment tape.
12. Carefully move the A/C head base plate in either direction for maximum head envelope output by adjusting the X-value adjust point.
13. Lock two (2) screws (D and E) with paint.

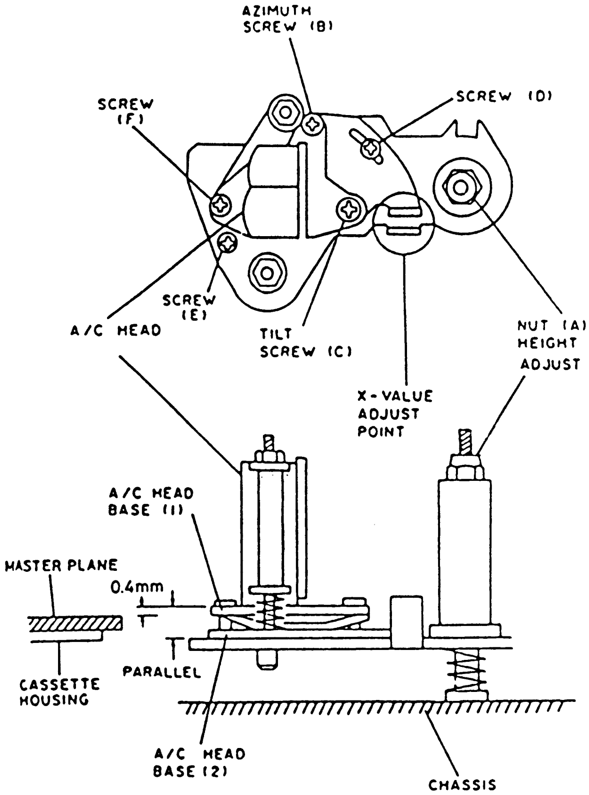

AZIMUTH SCREW (B)
SCREW (F)
SCREW (D)
SCREW (E)
A/C HEAD
TILT SCREW (C)
NUT (A) HEIGHT ADJUST
X-VALUE ADJUST POINT
A/C HEAD BASE (1)
MASTER PLANE
0.4mm
CASSETTE HOUSING
PARALLEL
A/C HEAD BASE (2)
CHASSIS

Fig. 3-9

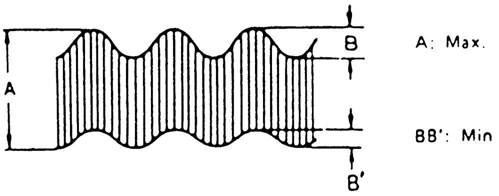

A
B
B'
A: Max.
BB': Min

Fig. 3-10

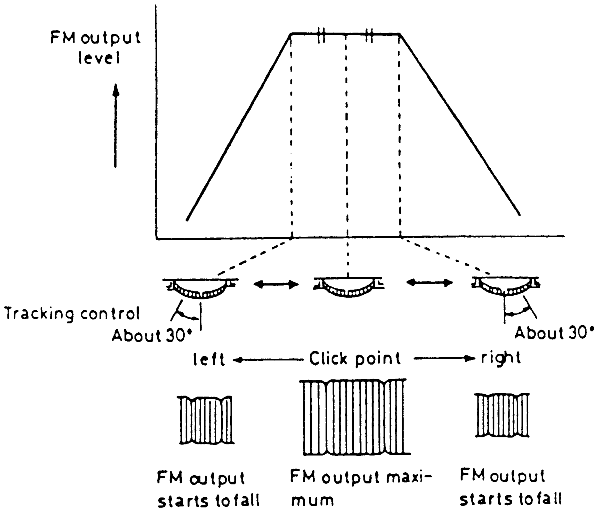

FM output level
Tracking control
About 30°
About 30°
left
Click point
right
FM output starts to fall
FM output maximum
FM output starts to fall

Fig. 3-11

2-7. ADJUSTMENT AFTER REPLACING CYLINDER (Fig. 3-12)

When the cylinder is replaced, the relative height between the cylinder and guide roller and the X value, etc. drift, so adjustments of the tape transport system and servo system are required. However, the drifts in the relative height and X value are very little when the cylinder is replaced normally, so they can be corrected by electrical adjustments.

1. Check that no curl or crease occurs around the guide roller. Adjust the guide roller height when they occur.
2. Perform tracking preset adjustment (Servo section).

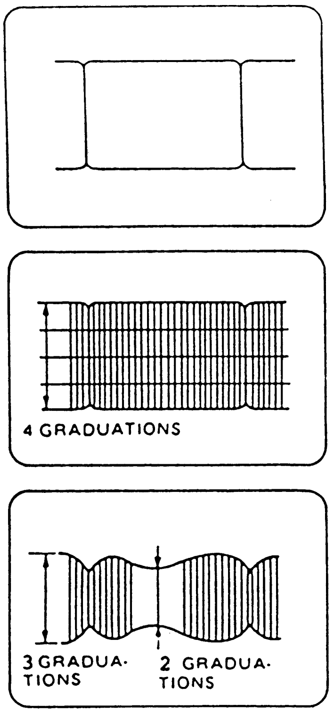

4 GRADUATIONS
3 GRADUATIONS
2 GRADUATIONS

Fig. 3-12

3. Adjust the X value (described in "A/C Head Adjustment").
4. Check the flatness and level fluctuations of the FM output. The checking method is described later.
5. Adjust the servo section and luma/chroma section.
   * Head Switching Point Adjustment
   * Record Luminance Level Adjustment
   * Record Chroma Level Adjustment

Check Flatness and Level Fluctuations of the FM Output (Fig. 3-12)

1. Set the TRACKING control (RV101) to the click position.
2. Connect the oscilloscope to TP206 on the main circuit board.
3. Fine adjust the voltage level range of the oscilloscope and set the FM output to 4 graduations.
4. Turn the TRACKING control to set the maximum amplitude of the FM output to 3 graduations.
5. Check that the minimum amplitude is more than 2 graduations.

3. TENSION AND TORQUE CHECKS

It is necessary to check the tension, torque and compression strength in the tape take-up section and moving section to smoothen the tape transport and to satisfy the basic performance of the VTR. When the tape transport is not smooth or the tape speed is abnormal, detect the faulty section by this checking, and then check again after replacing the faulty parts with normal ones to complete the work.

Item	VTR Operation	Measured Reel	Measurement Value	Remarks
Main brake torque	STOP	Supply	100 g.cm or more	Note 1
		Take-up	80 g.cm or more	
Slack removal torque	UNLOADING	Supply	90-220 g.cm	Note 1
Fast forward torque	F.FWD	Take-up	400 g.cm or more	Note 1
Rewind torque	REW	Supply	400 g.cm or more	Note 1
Take-up torque	PLAY	Take-up	80-110 g.cm	Note 1
Back-tension torque	F.FWD	Supply	4 - 10 g.cm	Note 2
	REW	Take-up		

Note 1: This is the value measured using the torque gauge and torque adapter while sliding the torque gauge at the speed of 0.8 rps. However, the main brake torque shows the value measured while moving the take-up reel clockwise and the supply reel counterclockwise by hand at the speed of 0.8 rps.

Note 2: This is the value measured using the dummy reel and fan type tension gauge while drawing the take-up reel disk counter-clockwise and the supply reel disk clockwise at the speed of 50 mm/s.

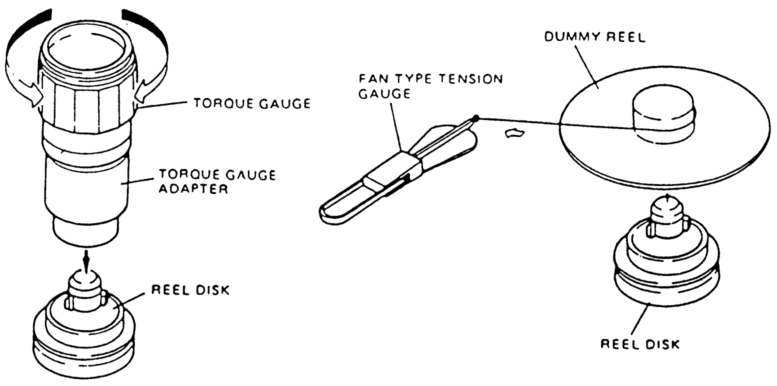


Fig. 3-13

CHAPTER 4 ELECTRICAL ADJUSTMENT

1. CORRECT SETUP VHS MOVIE ADJUSTMENT

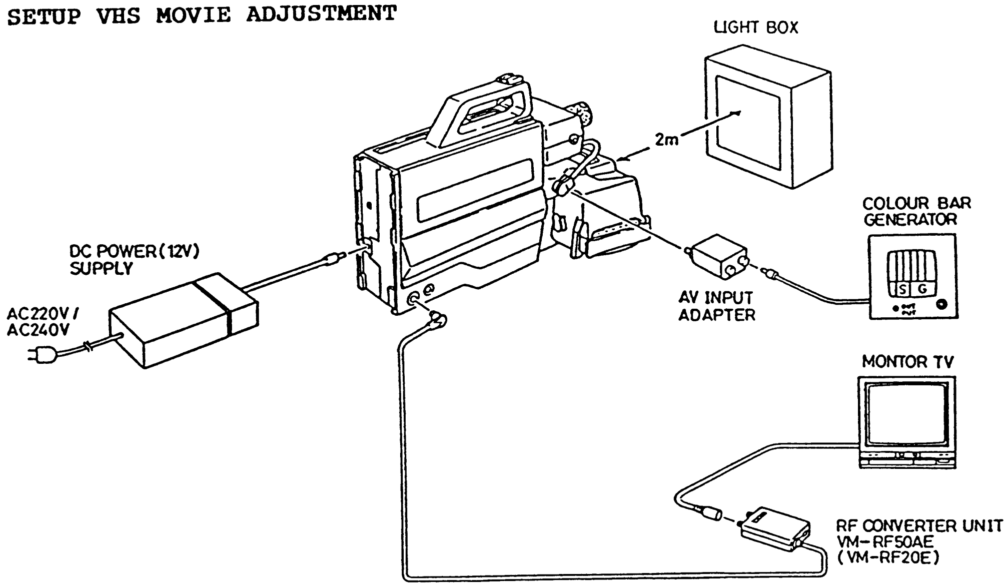

LIGHT BOX
2m
COLOUR BAR GENERATOR
S G
DC POWER(12V) SUPPLY
AC220V / AC240V
AV INPUT ADAPTER
MONTOR TV
RF CONVERTER UNIT VM-RF50AE (VM-RF20E)

Fig. 4-1 Correct Setup VHS MOVIE Adjustment

2. CAMERA SECTION

2-1. CIRCUIT BOARDS LOCATIONS

1. Process Circuit Board
2. Sensor Circuit Board
3. Interface Circuit Board
4. Autofocus Circuit Board

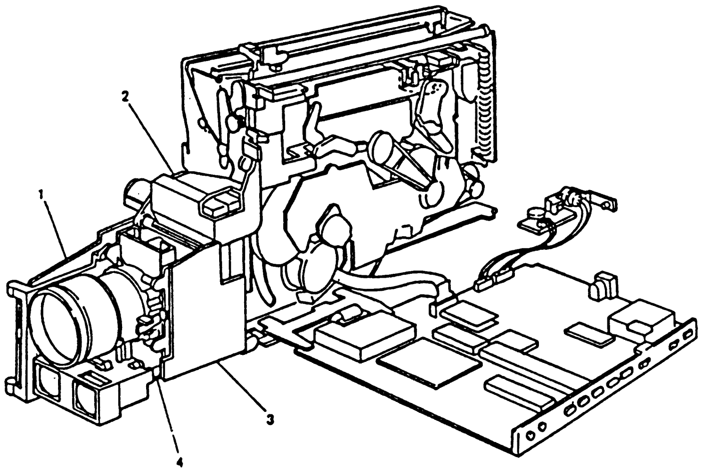


Fig. 4-2 Camera Section

2-2. TEST EQUIPMENT REQUIRED

The following equipment is required for adjustment of the VHS MOVIE.

Oscilloscope
(dual trace, 10:1 probe)
(Vectorscope)
Digital Voltmeter (DVM)
Frequency Counter
Colour Video Monitor
Grey Scale Chart
3100 K Light Box
Colour Bar Chart
Resolution Chart
Light Meter
Backfocus Chart
DC Power Supply (12V)
Backfocus Adjustment Driver
Light Balancing Filter C2
Light Balancing Filter C8

2-3. ADJUSTMENT CONDITIONS

1) Check that the VTR section has been adjusted properly before adjusting the camera section.
2) Connect this unit, power a supply, a colour video monitor and jig, etc. as shown in Fig. 4-1
3) Place the chart (light box) 2 m away from the camera (lens surface) when otherwise not specified.
4) Point the camera at the chart to fill the video period when otherwise not specified.
5) Use the 10:1 probe of the oscilloscope when otherwise not specified.

2-4. PRESET POSITIONS OF CUSTOMER CONTROLS AND SWITCHES

OPERATE switch ·········	ON
VIDEO/CAM switch ·······	CAM position
IRIS control ···········	Centre position
FOCUS switch ···········	MAN position
SHUTTER switch ·········	NORMAL position

2-5. CAMERA ADJUSTMANT

1) Subcarrier Frequency Adjustment (Fig. 4-52)

This adjustment sets the frequency of subcarrier.

Test Point:	TP102	Process
Adjust:	CT101 (Fo ADJ)	Process (IC105)
Observe:	Frequency Counter	

1. Connect the frequency counter to TP 102.
2. Adjust CT101 for 4.433619 MHz ± 20 Hz.

Note: Be careful when applying an adjustment driver to CT101 because the stray capacitance of the driver may vary the frequency.

2) VCO Lock Adjustment (Fig. 4-52)

Test Point:	TP101	Process
Adjust:	CT102 (VCO LOCK)	Process (IC105)
Observe:	DVM	

1. Connect the DVM to TP101.
2. Adjust CT102 for 3.2 volts ± 0.1 volts.

Note: Be careful when applying an adjustment driver to CT102 because the stray capacitance of the driver may vary the frequency.

3) Drive Pulse Frequency Adjustment (Fig. 4-51)

This adjustment sets the drive pulse frequency to the specified value.

Test Point:	TP001	Sensor
Adjust:		
	CT001 (DRIVE CLOCK Fo)	Sensor
Observe:	DVM	

1. Connect the DVM to TP001.
2. Adjust CT001 for 3.0 volts ± 0.1 volts.

Note: Be careful when applying an adjustment driver to CT001 because the stray capacitance of the driver may vary the voltage. Use non-metalic adjustment tool.

4) Backfocus Adjustment (Figs. 4-3, 4-4)

The purpose of this adjustment is to ensure proper focus tracking throughout the zoom range.

Adjust:	BACKFOCUS ADJUSTMENT POINT (BACKFOCUS LENS)
Observe:	Colour Video Monitor

1. Position the camera section three (3) meters from the backfocus chart and illuminate the object with approximately 100 lux.
2. Set the zoom ring to the wide angle position and the focus ring to the three (3) meter position. (See Fig. 4-3)
3. Loosen the hexagonal screw. (See Fig. 4-4)
4. Insert the backfocus adjustment driver into the backfocus adjustment point to adjust for optimum focus.
5. Set the zoom ring to the telephoto end and confirm that the chart is in focus. If it is not in focus, return the zoom ring to the wide angle end and readjust step 4.
6. Confirm that the chart is approximately in focus at both the wide angle and telephoto ends with the focus ring set to the three (3) meter position.

Note: After adjustment is completed, tighten the hexagonal screw and coat the screw with lock paint.

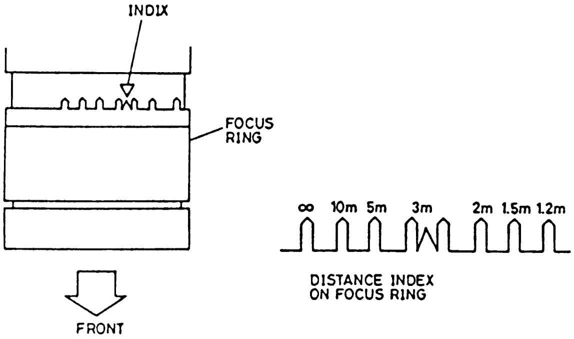


Fig. 4-3 Backfocus Adjustment

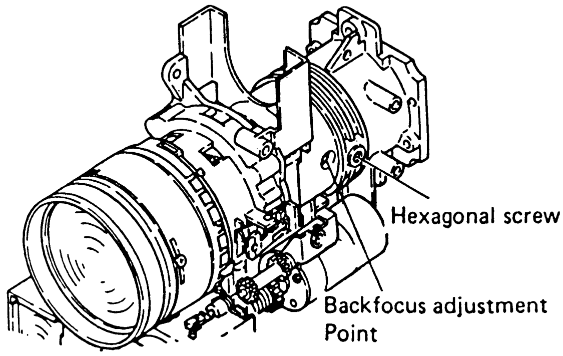


Fig. 4-4 Backfocus Adjustment

5) Shading Adjustment (Figs. 4-5, 4-52)

This adjustment compensates the luminance shading and chroma shading.

Test Point:	Video Out (TP209)	Main
Adjust:		
RM101-15	(CHROMA SHADING 1)	Process
RM101-21	(CHROMA SHADING 2)	Process
RM101-22	(LUMA SHADING)	Process
Observe:	Oscilloscope	

1. Cover the lens.
2. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
3. Adjust RM101-15 and RM101-21 to make the waveform flat.
4. Adjust RM101-22 to make the waveform flat.

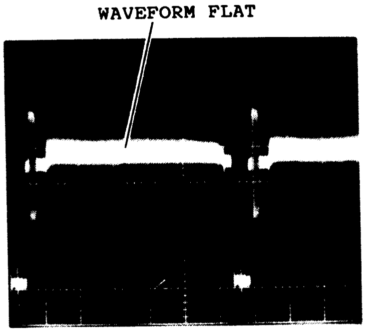


Fig. 4-5 Shading Adjustment

6) Matrix Adjustment (Figs. 4-6, 4-52)
This adjustment corrects unevenness in tint.

Test Point: PG106-3 Process
Adjust: RT101 (MATRIX) Process
Observe: Oscilloscope

1. Aim the camera at the colour bar chart.
2. Connect the oscilloscope to PG106-3.
3. Adjust RT101 so the blue level becomes 70% ± 10% of the white level.

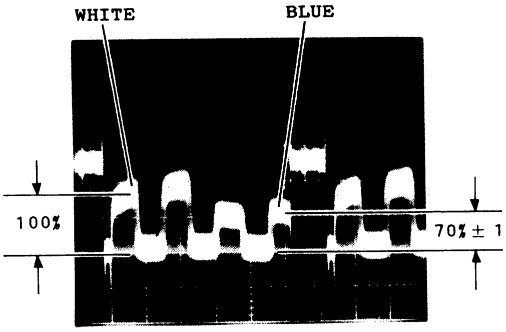


Fig. 4-6 Matrix Adjustment

7) Black Balance/LUMA Setup Adjustment (Figs. 4-7, 4-8, 4-9, 4-52)
This adjustment sets the proper black balance of the picture.

Test Points: Video Out (TP209) Main
Adjust:
RM101-3 (BLU SETUP) Process
RM101-4 (RED SETUP) Process
RM101-5 (LUMA SETUP) Process
RM101-14 (GRN SETUP) Process
Observe: Vectorscope
Oscilloscope

Adjustment using the oscilloscope (Figs. 4-7, 4-9)

1. Cover the lens.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Connect PG106-3 (BLU) and PG106-4 (RED) to ground (PG106-1).
5. Adjust RM101-14 for minimum carrier in waveform. (See Fig. 4-7)
6. Remove ground (PG106-1) connections from PG106-3 and PG106-4.
7. Adjust RM101-3 and RM101-4 for minimum carrier in waveform.
8. Adjust RM101-5 for 35mV ± 15mV from blanking to the centre of the waveform. (See Fig. 4-9)

Adjustment using the vectorscope and oscilloscope (Figs. 4-8, 4-9)

1. Cover the lens.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the video out to terminated vectorscope. (Terminate with 75 ohms.)
4. Connect PG106-3 (BLU) and PG106-4 (RED) to ground (PG106-1).
5. Adjust RM101-14 so the bright portion of the vector is positioned at the centre of the vectorscope screen. (See Fig. 4-8)
6. Remove ground (PG106-1) connections from PG106-3 and PG106-4.
7. Adjust RM101-3 and RM101-4 so the bright portion of the vector is positioned at the centre of the vectorscope screen.
8. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to a 75 ohms.)
9. Adjust RM101-5 for 35mVp-p ± 15mV from blanking to the centre of the waveform. (See Fig. 4-9)

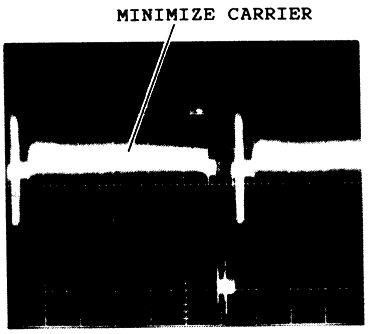


Fig. 4-7 Black Balance/LUMA Setup Adjustment

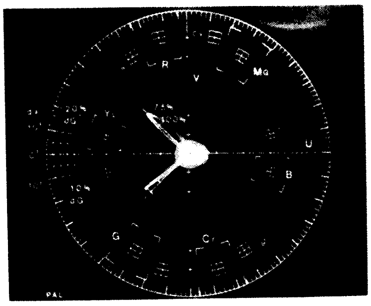


Fig. 4-8 Black Balance/LUMA Setup Adjustment

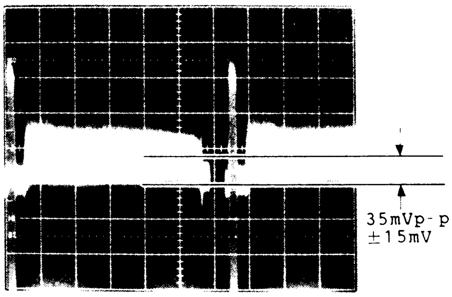


Fig. 4-9 Black Balance/LUMA Setup Adjustment

8) Red/Blue Signal Gain Adjustment

(Figs. 4-10, 4-11, 4-52)

This procedure sets the correct red and blue signal levels for proper white balance circuit operation.

Test Point: Video Out (TP209) Main
Adjust:
RM101-11 (BLU GAIN) Process
RM101-12 (RED GAIN) Process
Observe: Oscilloscope
Vectorscope

Adjustment using oscilloscope (Fig. 4-10)

1. Aim the camera at the grey scale chart.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Adjust RM101-11 and RM101-12 to minimize the carriers at each step of the waveform. (See Fig. 4-10)

Adjustment using vectorscope (Fig. 4-11)

1. Aim the camera at the grey scale chart.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the video out to terminated vectorscope. (Terminate with 75 ohms.)
4. Adjust RM101-11 and RM101-12 so the bright portion of the vector is positioned at the centre of the vectorscope screen. (See Fig. 4-11)

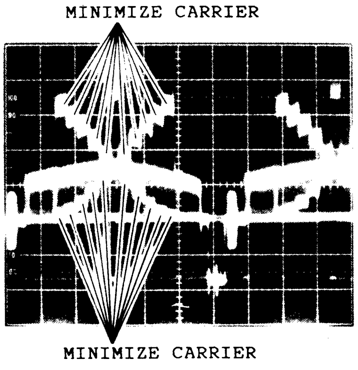


Fig. 4-10 Red/Blue Signal Gain Adjustment

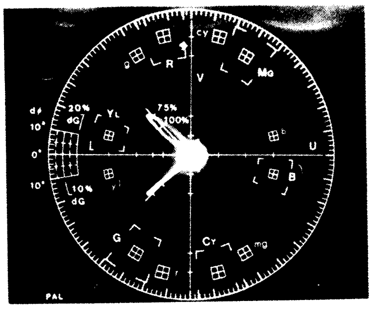


Fig. 4-11 Red/Blue Signal Gain Adjustment

9) AIC Level Adjustment

(Figs. 4-12, 4-52)

This adjustment sets the balance point of the auto iris control.

Test Point: Video Out (TP209) Main
Adjust: RT102 (AIC) Process
Observe: Oscilloscope

1. Aim the camera at the grey scale chart.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the osciloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Adjust RT102 for 735mVp-p ± 15mV from the blanking level to the centre of the white level on the grey scale.

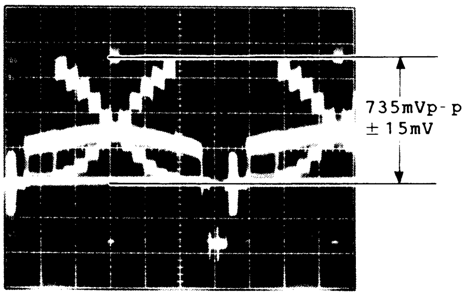


Fig. 4-12 AIC Level Adjustment

10) Burst Level Adjustment

(Figs. 4-13, 4-52)

This adjustment sets the burst level.

Test Point: Video Out (TP209) Main
Adjust:
RM101-13 (BURST LEVEL) Process
Observe: Oscilloscope

1. Aim the camera at the grey scale chart.
2. Apply DC1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Adjust RM101-13 for 300mVp-p ± 15mV to the burst level of grey scale.

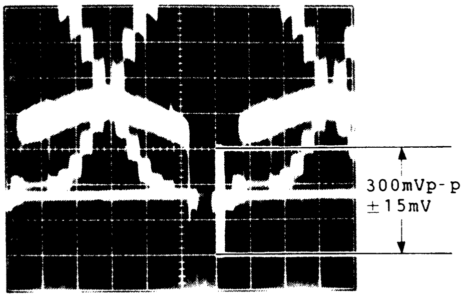


Fig. 4-13 Burst Level Adjustment

11) Chroma Level Adjustment
(Figs. 4-14, 4-15, 4-52)

This adjustment sets the chroma level.

Test Point: Video Out (TP209) Main
Adjust:
RM101-2 (CHROMA LEVEL) Process
Observe: Oscilloscope
Vectorscope

Adjustment using oscilloscope
(Fig. 4-14)

1. Aim the camera at the colour bar chart.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Adjust RM101-2 so the red level of the waveform is 660mV ± 50mV. (See Fig. 4-14)

Adjustment using vectorscope (Fig. 4-15)

1. Aim the camera at the colour bar chart.
2. Apply DC 1.4 volts (± 0.05 volt) to PG106-2. (Ground the PG106-1.)
3. Connect the video out to terminated vectorscope. (Terminate with 75 ohms.)
4. Adjust RM101-2 so that the red vector is equal to more than 220% ± 5% when compared to the burst level. (See Fig. 4-15)

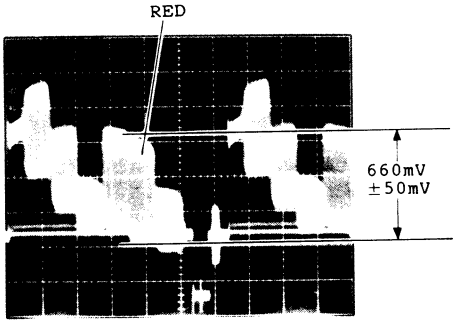


Fig. 4-14 Chroma Level Adjustment

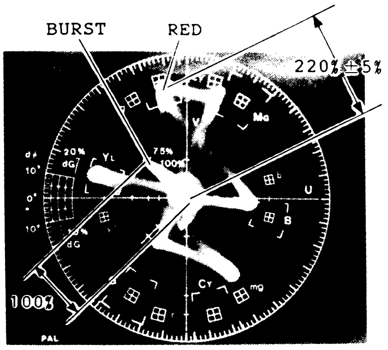


Fig. 4-15 Chroma Level Adjustment

12) Auto White Balance Adjustment
(Figs. 4-16, 4-17, 4-52)

This adjustment sets the auto white balance performance.

Test Point: Video Out (TP209) Main
Adjusts: RM101-1 (WHT BAL.) Process
Observe: Oscilloscope
Vectorscope

Adjustment using oscilloscope
(Fig. 4-16)

1. Attach the light balancing filter C10 (C8+C2) over the lens.
2. Aim the camera at the grey scale chart.
3. Connect the oscilloscope to TP209 (video out) on the main circuit board. (Connect AV OUT to 75 ohms.)
4. Adjust RM101-1 to minimize the carriers at each step of the waveform. (See Fig. 4-16)

Adjustment using vectorscope (Fig. 4-17)

1. Attach the light balancing filter C10 (C8+C2) over the lens.
2. Aim the camera at the grey scale chart.
3. Connect the video out to terminated vectorscope. (Terminate with 75 ohms.)
4. Adjust RM101-1 so the bright portion of the vector is positioned at the centre of the vectorscope screen. (See Fig. 4-17)

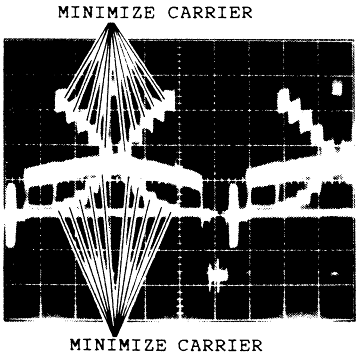


Fig. 4-16 Auto White Balance Adjustment

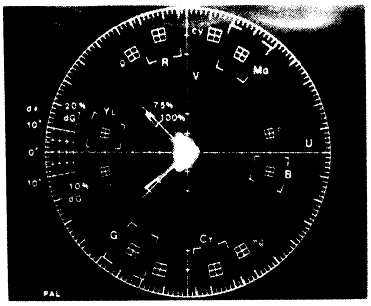


Fig. 4-17 Auto White Balance Adjustment

2-6. ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT

1) EVF Horizontal Hold Adjustment

(Figs. 4-18, 4-53)

This procedure sets the horizontal sync frequency during VTR playback.

Test Point: TP801 EVF
Adjust: RT801 (H. HOLD) EVF
Observe: Frequency Counter

1. Connect the frequency counter to TP 801.
2. Connect a 47 μF capacitor between pins 1 and 2 of CN801.
3. Adjust RT801 for 15.62 kHz ± 0.05 kHz.
4. Disconnect the capacitor.

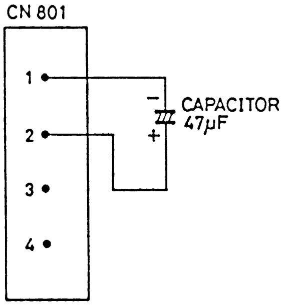


Fig. 4-18 EVF Horizontal Hold Adjustment

2) EVF Focus Adjustment (Fig. 4-53)

This control adjusts for optimum focus of the electronic viewfinder picture.

Adjust: RT803 (FOCUS) EVF
Observe: EVF display

1. Aim the camera at the resolution chart.
2. Adjust RT803 for maximum resolution of the EVF display.

3) EVF Picture Tilt Adjustment

(Fig. 4-19)

This adjustment procedure eliminates picture tilt on the EVF display.

Adjust: Deflection Yoke
Observe: EVF Display

1. Align the camera with the chart making sure that both the camera and the chart are on the same plane.
2. Loosen the screw holding the deflection yoke.
3. Observe the viewfinder display, and turn the deflection yoke until the image is straight.

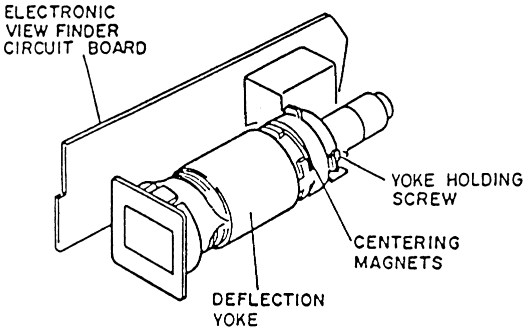


Fig. 4-19 EVF Picture Tilt and EVF Centring Adjustment

4) EVF Centring Adjustment (Fig. 4-19)

This adjustment centres the image observed by the camera in the EVF display.

Adjust: Centring Magnets
Observe: EVF Display

1. Aim the camera at the resolution chart and align the centre of the chart with the centre of the camera lens.
2. Adjust the centring magnets until the centre of the picture viewed by the camera is positioned in the centre of the EVF Display.

5) EVF Vertical Size Adjustment

(Fig. 4-53)

This adjustment determines the vertical size of the image appearing in the EVF display.

Adjust: RT802 (V. SIZE) EVF
Observe: EVF Display

1. Aim the camera at the resolution chart, and line up the reference arrow head with the edge of the raster in the EVF.
2. Adjust RT802 so that the circle in the chart is round.

6) EVF Brightness Adjustment (Fig. 4-53)

This adjustment sets the brightness of the picture in the EVF display.

Adjust: RT805 (BRIGHT) EVF
Observe: EVF Display
Colour Video Monitor

1. Aim the camera at the grey scale chart.
2. Adjust RT805 so the black and white portions of the chart displayed in the EVF match those displayed by the monitor.

2-7. AUTOFOCUS ADJUSTMENT

1) Autofocus Sensor Position Adjustment (Fig. 4-20)

Adjust: Sensor Adjustment Screw
Observe: Colour Video Monitor

1. Place the FOCUS switch in the AUTO position.
2. Aim the camera at the backfocus chart.
3. Place the chart three (3) meters from the camera lens.
4. Set the focus ring to the three (3) meters position.
5. Adjust the Sensor Adjustment Screw for optimum focus of the monitored picture.

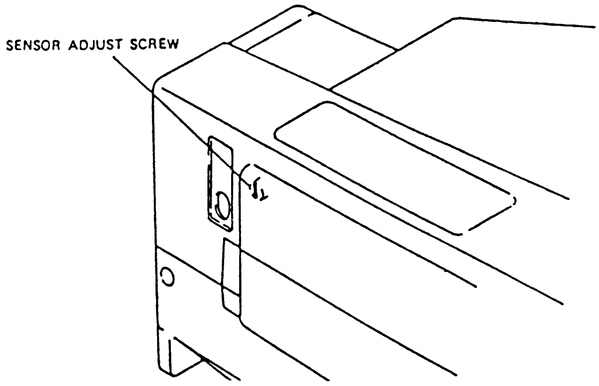


Fig. 4-20 Autofocus Sensor Position Adjustment

3. VTR SECTION

3-1. CIRCUIT BOARD LOCATIONS

1. Main Circuit Board
2. Safety Tab Switch
3. Cassette Holder Switch
4. Reel Sensor

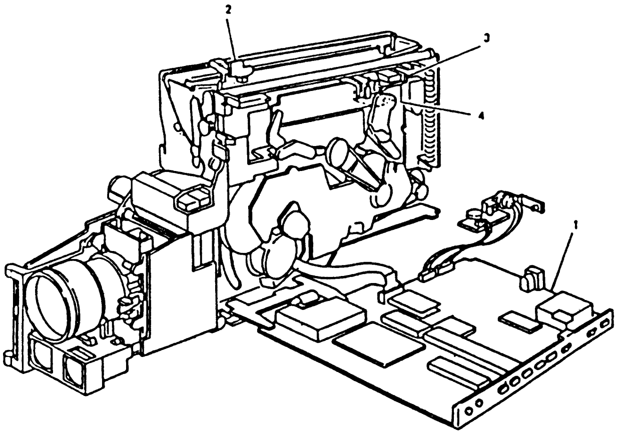


Fig. 4-101 Circuit Board Locations

5. Supply End Sensor
6. Take-up End Sensor
7. End lamp

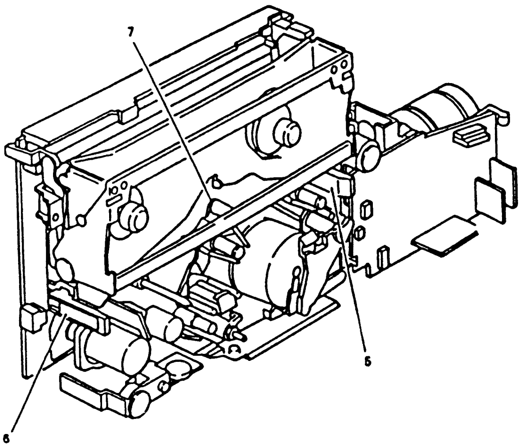
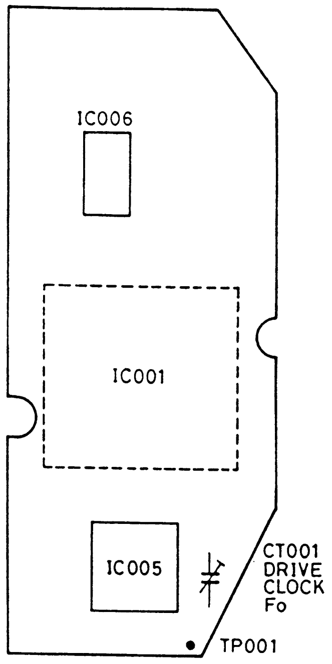


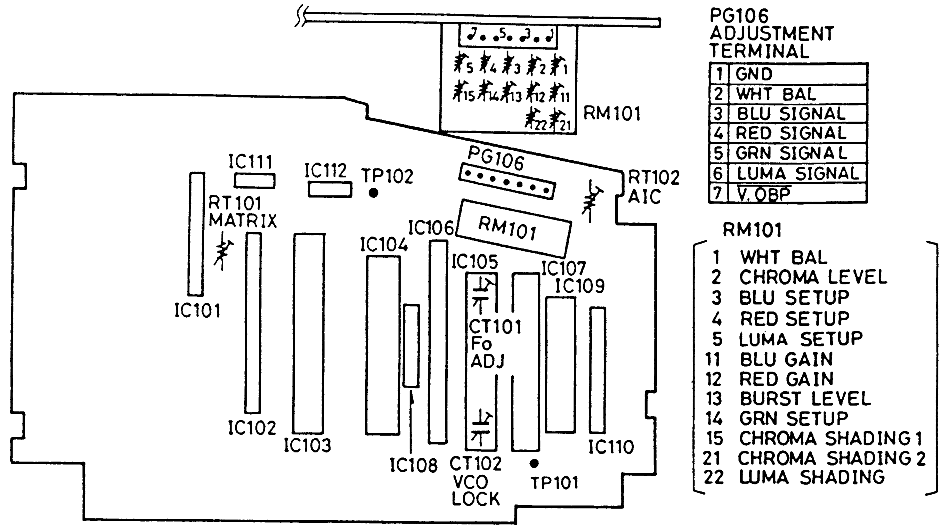
Fig. 4-102 Circuit Board Locations

2-8. ADJUSTMENT PARTS LOCATIONS



IC006
IC001
IC005
CT001
DRIVE
CLOCK
Fo
TP001

Fig. 4-51 Sensor Circuit Board (Solder Side)



5 4 3 2 1
15 14 13 12 11
22 21
RM101
PG106
IC111
IC112
TP102
RT102
AIC
RT101
MATRIX
IC106
RM101
IC104
IC105
IC107
IC109
IC101
CT101
Fo
ADJ
IC102
IC103
IC108
CT102
VCO
LOCK
TP101
IC110

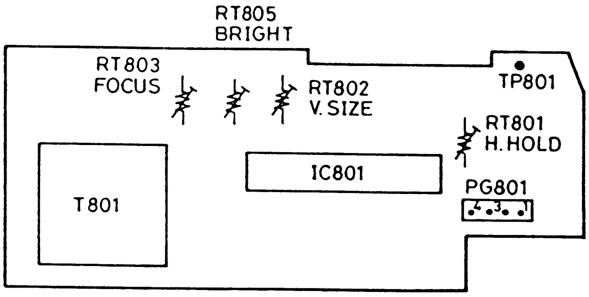
PG106 ADJUSTMENT TERMINAL

1	GND
2	WHT BAL
3	BLU SIGNAL
4	RED SIGNAL
5	GRN SIGNAL
6	LUMA SIGNAL
7	V. OBP

RM101

1	WHT BAL
2	CHROMA LEVEL
3	BLU SETUP
4	RED SETUP
5	LUMA SETUP
11	BLU GAIN
12	RED GAIN
13	BURST LEVEL
14	GRN SETUP
15	CHROMA SHADING 1
21	CHROMA SHADING 2
22	LUMA SHADING

Fig. 4-52 Process Circuit Board (Components Side)



RT805
BRIGHT
RT803
FOCUS
RT802
V.SIZE
TP801
RT801
H.HOLD
IC801
T801
PG801

Fig. 4-53 Electronic Viewfinder (EVF) Circuit Board (Components Side)

3-2. TEST EQUIPMENT REQUIRED

The following equipment is required for adjustment for the VHS MOVIE.

Oscilloscope (dual trace, 10:1 probe)
Digital Voltmeter (DVM)
Millivoltmeter
Frequency Counter
PAL Alignment Tape (P#7099052)
Blank Tape
Colour Video Monitor
Colour Bar Generator
3100 K Light Box
Colour Bar Chart
DC Power Supply (12V)

3-3. ADJUSTMENT CONDITIONS

1) Connect this unit, a power supply, a colour video monitor and jigs, etc. as shown Fig. 4-1.
2) Use the 10:1 probe of the oscilloscope when otherwise not specified.

3-4. PRESET POSITIONS OF CUSTOMER CONTROLS AND SWITCHES

OPERATE switch	ON position
VIDEO/CAM switch	VIDEO position
SHUTTER switch	NORMAL position
TRACKING control	CENTRE position

3-5. SYSTEM CONTROL SECTION

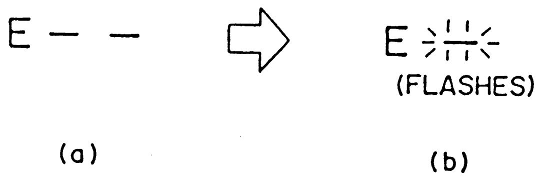
1) Over Discharge Level Adjustment
(Figs. 4-103, 4-151)

This adjustment determines the over discharge detection level. When the battery voltage drops to a specified level, the VTR will automatically shut off. When the over discharge detection level is set below 10.9V ± 0.2V, the battery service life will be reduced. Conversely, when the voltage is adjusted higher than 11.65V, the usable time per charge is shortened.

Test Point:
PG902-2 (INT BATTERY TERMINAL) Main
Adjust:
RT901 (OVER DISCHARGE LEVEL) Main
Observe: Colour Video Monitor

1. Apply DC12V to the EXT battery jack terminal.
2. Load the instrument with a blank tape.
3. Set the VIDEO/CAM switch to the CAM position.
4. Place the instrument in the "Record" mode.
5. Press the DISPLAY button to display the battery level indicator and tape counter on the monitor screen.
6. Adjust RT901 so that the battery level indicator shows that the battery is approximately full charged.

7. Connect a DVM to PG902-2 on the main board.
8. Adjust the power voltage to 11.67V ± 20mV at the PG902-2.
9. Turn to adjust RT901 so the battery level indicator state (a) is changed to state (b) as shown in Fig. 4-103.
10. Set the VIDEO/CAM switch to the VIDEO position.



(a) (b)

Fig. 4-103 Over Discharge Level Adjustment

2) Character Position Adjustment
(Figs. 4-104, 4-151)

This adjustment regulates the horizontal width of the character display on the screen.

Adjust:
RT902 (CHARACTER POSITION) Main
Observe: Colour Video Monitor

1. Apply colour bar signal to EVF jack through the AV input adapter.
   (or aim the camera at the colour bar chart.)
2. Set the VIDEO/CAM switch to the CAM position.
3. Press the DISPLAY button to display the battery level indicator and tape counter on the monitor screen.
4. Adjust RT902 so that remaining battery level is positioned on the monitor screen as shown in Fig. 4-104.
5. Set the VIDEO/CAM switch to the VIDEO position.

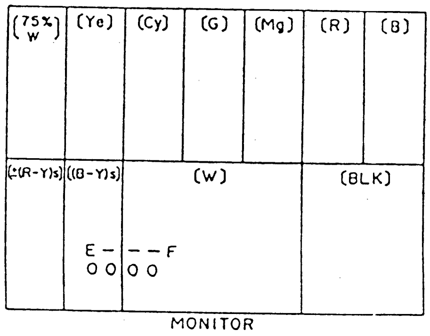


Fig. 4-104-A Character Position Adjustment

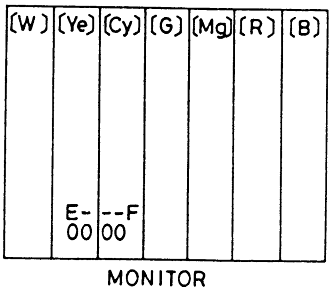


Fig. 4-104-B Character Position Adjustment

3-6. SERVO SECTION

1) Reference Frequency Adjustment
(Fig. 4-151)

This reference frequency is used to correct for fluctuations caused by unevenness between the belt, pulley, capstan motor and capstan shaft.

Test Point: AUDIO OUT
Adjust: R618 Main
R619 Main
Observe: Frequency Counter

1. Connect the frequency counter to audio out.
2. Connect a jumper between TP601 and PG 610-3 on the main circuit board.
3. Load the instrument with an alignment tape and play back the 3kHz audio signal.
4. Confirm that the frequency reading on the counter is 3000Hz ± 15Hz.
5. If the reading is higher than 3015Hz, remove R619.
   Check for the presence of R618.
   If not present, add R618.
6. If the reading is lower than 2985Hz, remove R618.
   Check for the presence of R619.
   If not present, add R619.
7. Remove the jumper.

2) Head Switching Point Adjustment
(Figs. 4-105, 4-151)

The pulse generator shifter determines the video head switching point during playback. Misadjustment of pulse generator shifter may cause head switching noise in the picture and/or vertical instability.

Test Point: VIDEO OUT (TP209) Main
Adjust: RT602 (PG SHIFTER) Main
Observe: Oscilloscope

1. Load the instrument with an alignment tape and play back the colour bar signal.
2. Connect the oscilloscope to TP209.
   (0.5V/50μsec.cm)
3. Trigger the oscilloscope at SW 25Hz.
   (Use TP205 on the main circuit board.)
4. Set the oscilloscope to the (-) slope and adjust RT602 so that the leading edge of the SW 25Hz signal is placed 6.5H ± 0.5H (horizontal) lines before the start of CH-1 vertical sync.
5. Set the oscilloscope to the (+) slope and confirm the leading edge of the SW 25Hz signal is 6.5H ± 0.5H (horizontal) lines before the start of CH-2 vertical sync.

Note: The waveforms of CH-1 and CH-2 video signals in the diagram may be opposite depending on the alignment tape.

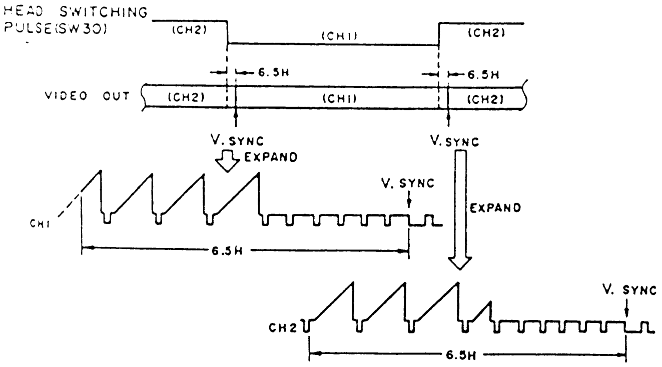


Fig. 4-105 Head Switching Point Adjustment

3) Tracking Preset Adjustment

(Figs. 4-106, 4-151)

This adjustment is performed to obtain correct tracking during playback of a tape recorded by the same instrument. When this adjustment is incomplete, noise may be conspicuous with the tracking control in the detent position or noise may not be removed by adjusting the tracking control.

Test Points:	VIDEO OUT (TP209)	Main
	TP602	Main
Adjust:		
	RT601 (TRACKING PRESET)	Main
Observe:	Oscilloscope	

1. Apply colour bar signal to the EVF jack through the AV input adapter. (or aim the camera at the colour bar chart.)
2. Confirm the TRACKING control to the detent (click) position.
3. Using a blank tape, make a recording and play it back.
4. Connect a channel-1 scope probe to TP 602. (1V/0.5msec.cm)
5. Connect a channel-2 scope probe to video out. (0.5V/0.5msec.cm)
6. Trigger the oscilloscope at SW 25Hz. (Use TP205 on the main circuit board.)
7. Set the oscilloscope to the (-) slope.
8. Adjust RT601 so that the CTL pulse and the vertical sync back porch of the video signal match.

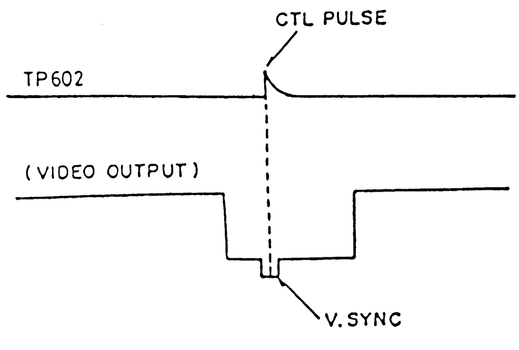


Fig. 4-106 Tracking Preset Adjustment

3-7. LUMA/CHROMA SECTION

1) Record Chroma Level Adjustment

(Figs. 4-107, 4-108, 4-109, 4-151)

Optimum record chroma level is regulated by this adjustment. If the record chroma level is too high, diamond beats will be seen in the screen. If the level is too low, the colour is degraded.

Test Point:	TP201	Main
Adjust:		
	RT201 (REC LUMA LEVEL)	Main
	RT202 (REC CHROMA LEVEL)	Main
Observe:	Oscilloscope	

1. Apply colour bar signal to the EVF jack through the AV input adapter. (or aim the camera at the colour bar chart.)
2. Connect the oscilloscope to TP201. (50mV/2msec.cm) (Ground the TP202 on the main circuit board.)
3. Load the instrument with a blank tape.
4. Set the VIDEO/CAM switch to the CAM position.
5. Place the instrument in the "Record" mode.
6. Turn RT201 fully counterclockwise.
7. Check the upper cylinder to see the number stamped on the top. (See Fig. 4-107)
8. Adjust RT202 as shown in the chart. (See Figs. 4-108, 4-109)
9. Perform the record luminance level adjustment.
10. Set the VIDEO/CAM switch to the VIDEO position.

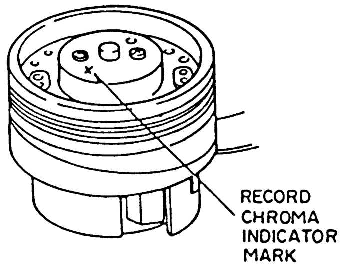


Fig. 4-107 Upper Cylinder Mark Location

MARK	LEVEL
0	25mVp-p
2	30mVp-p
4	35mVp-p

Fig. 4-108 Record Chroma Level

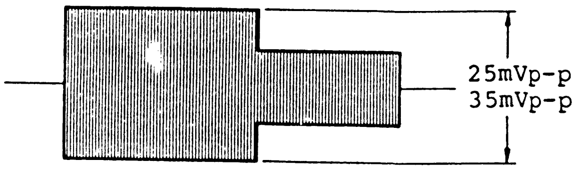


Fig. 4-109 Record Chroma Level

2) Record Luminance Level Adjustment
(Figs. 4-110, 4-151)

Optimum record luma level is regulated by this adjustment.
If the record luma level is too high, video may be overloaded.
If the level is too low, the S/N ratio deteriorates.
Record chroma level should be set prior to adjusting the record luma level.

Test Point: TP201 Main
Adjust:
RT201 (REC LUMA LEVEL) Main
Observe: Oscilloscope

1. Apply colour bar signal to the EVF jack through the AV input adaptor. (or aim the camera at the colour bar chart.)
2. Connect the oscilloscope to TP201. (50mV/2msec.cm) (Ground the TP202 on the main circuit board.)
3. Load the instrument with a blank tape.
4. Set the VIDEO/CAM switch to the CAM position.
5. Place the instrument in the "Record" mode.
6. Adjust RT201 for 140mVp-p ± 5mV.
7. Set the VIDEO/CAM switch to the VIDEO position.

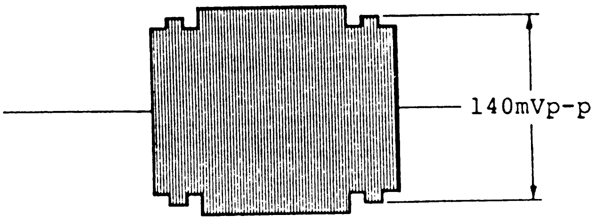


Fig. 4-110 Record Luminance Level

3-8. AUDIO SECTION

1) Audio Playback Gain Adjustment
(Fig. 4-151)

This adjustment sets the audio signal output to the specified level.

Test Points: AUDIO OUTPUT
AUDIO GND
Adjust: RT401 (AUDIO PB GAIN) Main
Observe: Millivoltmeter

1. Connect the millivoltmeter to the audio output. (Use audio GND)
2. Load the instrument with an alignment tape and play back the 1kHz audio signal.
3. Adjust RT401 for a reading of -7.8 dBm ± 0.5 dBm.

2) Audio Bias Level Adjustment
(Fig. 4-151)

This adjustment optimizes the audio record bias.
When the audio record bias is too low, high frequencies are increased resulting in distortion. When the level is too high, high frequencies are attenuated.

Test Points: TP401 (REC BIAS) Main
TP402 (BIAS GND) Main
Adjust:
RT402 (AUDIO BIAS LEVEL) Main
Observe: Millivoltmeter

1. Connect the millivoltmeter to TP401. (Used GND TP402)
2. Load the instrument with a blank tape.
3. Set the VIDEO/CAM switch to the CAM position.
4. Place the instrument in the "Record" mode.
5. Adjust RT402 for a reading of 2.4mV ± 0.1mVrms
6. Set the VIDEO/CAM switch to the VIDEO position.

3-9. ADJUSTMENT PARTS LOCATION

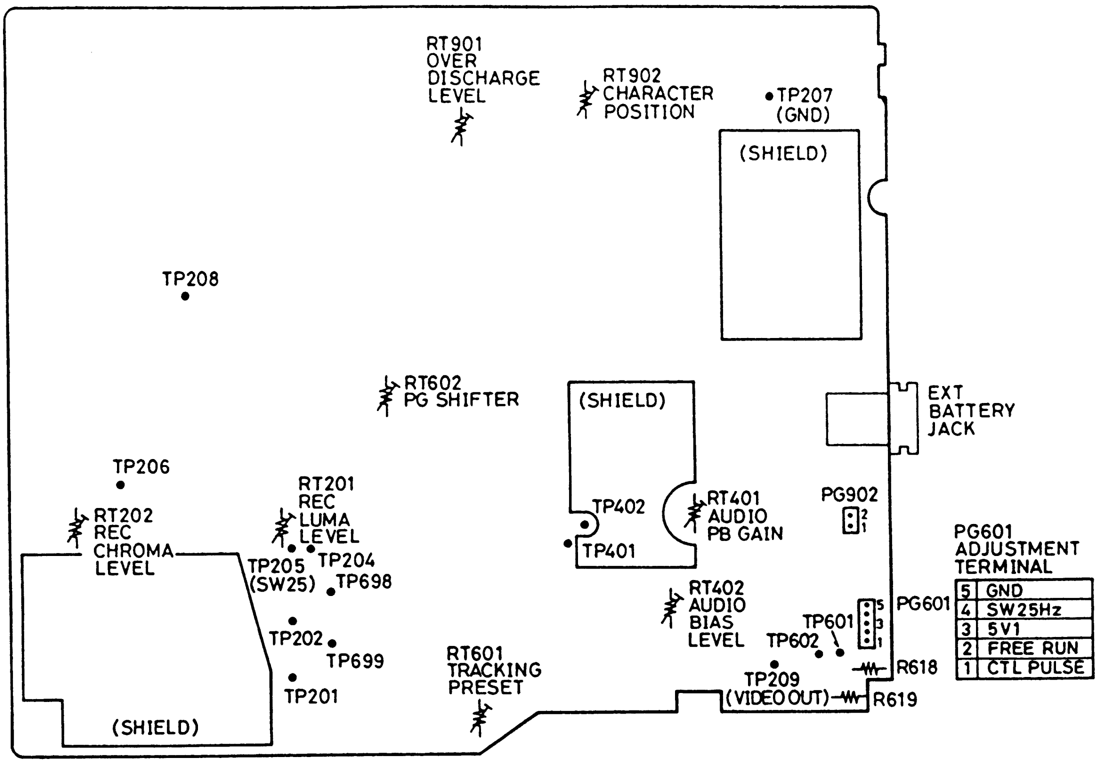

RT901
OVER
DISCHARGE
LEVEL
RT902
CHARACTER
POSITION
TP207
(GND)
(SHIELD)
TP208
RT602
PG SHIFTER
(SHIELD)
EXT
BATTERY
JACK
TP206
RT201
REC
LUMA
LEVEL
RT202
REC
CHROMA
LEVEL
TP402
TP401
RT401
AUDIO
PB GAIN
PG902
2
1
PG601
ADJUSTMENT
TERMINAL
5 GND
4 SW25Hz
3 5V1
2 FREE RUN
1 CTL PULSE
TP205
(SW25)
TP204
TP698
RT402
AUDIO
BIAS
LEVEL
TP601
TP602
PG601
5
3
1
TP202
TP699
RT601
TRACKING
PRESET
TP209
(VIDEO OUT)
R618
R619
TP201
(SHIELD)

Fig. 4-151 Main Circuit Board
(Solder Side)

CHAPTER 5

SCHEMATIC DIAGRAMS AND CIRCUIT BOARD DIAGRAMS

WHEN USING THIS SERVICE REFERENCE MATERIAL

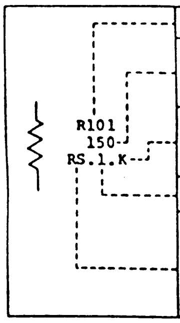
1. How to Read Abbreviations

Note:

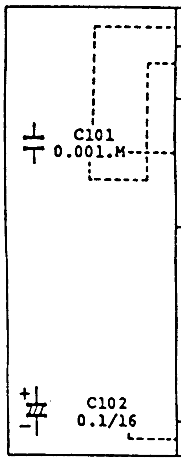
(1) Voltages measured with the negative side of the power supply as reference:
The voltages in the CAMERA section are measured when the VTR is in the record modes.
The voltages in the VTR section are measured in the record and play modes.
The voltages in parentheses are measured in the record mode.
The single voltages are common in the record and play modes.

(2) Nomenclature of Resistors and Capacitors.

(3) Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.



	Circuit No.
Value	No indicated (Ohm) K: 1000 M: 1000k
Tolerance	No indicated +5% K: +10% M: +20%
Wattage	No indicated 1/4 W
Sort	No indicated Carbon film RC Composition RW Wire wound RS Oxide metal film RN Fixed metal film



	Circuit No.	
Value	No indicated µF P PF	
Tolerance	No indicated +10% J +5% M +20% Z +80%, 20% D +0.5pF C +0.25pF	
Sort		Ceramic
	+	Electrolitic
	M	Mylar
	P	Polyester
	S	Styrol
Voltage	No indicated 50	

2. Cautions on Use of MOS IC

(1) The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.

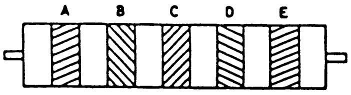
(2) High voltages may be applied during soldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.

(3) The human body, clothes made of synthetic fibres or nylon gloves may be charge with several thousands volts of static electricity because of friction, so a workers should be grounded.

(4) Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

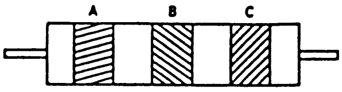
3. How to Read Capacity and Inductance of Resistor Shape Chapacitors and Coils

CAPACITOR



CAPACITY: (10A+B)xC (pF)
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL



INDUCTANCE: (10A+B)xC (µH)

COLOR	A,B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

LEADLESS COMPONENT IDENTIFICATION

1. Leadless Transistor

The leadless transistor number is indicated by a code on the surface, using two alphabet letters, one numeral and two alphabet letters or one alphabet letter and one numeral.

(1) Identification for one alphabet letter and one numeral, two alphabet letters or one numeral and two alphabet letters.

Use this code and the following chart for component identification.

Letter	Transistor Number	Letter	Transistor Number
A	2SB709	P	2SD814
B	2SC1621	Q	2SC2620
BR	2SC2412KR(BR)	R	2SC2618
BS	2SC2412KS(BS)	S	2SA1121
C	2SC1122	U	2SC2404
CR	2SB710R(CR)	WQ	2SK322Q(WQ)
CQ	2SC2412KQ(CQ)	W	2SD602
D	2SC2463	X	2SK157
E	2SA1022	Y	2SD601
F	2SC2619	1F	2SK321
FR	2SA1037KR(FR)	1M	2SA1052
H	2SC1036K	1K	2SK316
I	2SB792	2B	2SK374
K	2SK160	13	DTA143K
L	2SC2462	15	DTA124K
L(6)	2SC1623(6)(L6)	25	DTC124K
M	2SA1052	26	DTC144K
N	2SC1653		

Example:

Code	Number
CD	2SA1122D
LD	2SC2462D

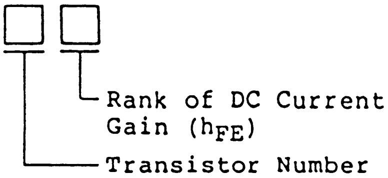


Fig.5-1 Leadless Transistor Code

(2) Identification for one alphabet letter and one numeral.

Use this code and the following chart for component identification.

Letter	Transistor Number
L	2SC1623

Example:

Code	Number
L5	2SC1623(5)
L6	2SC1623(6)

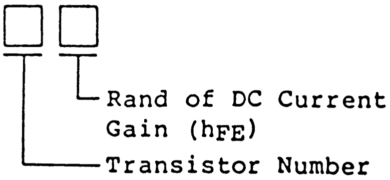


Fig.5-2 Leadless Transistor Code

2. Leadless Diode

The leadless diode number is indicated by a code on the surface, using one alphabet letter and one numeral, two alphabet letters, two alphabet letters and one numeral, two numerals, two numerals and one alphabet letter or three numerals.

Use this code and the following chart for component identification.

Code	Diode Number	Code	Diode Number
C1	HSM88S		
MC	MA153	MH	MA151K
MN	MA151WA	MO	MA152WA
MT	MA151WK	MU	MA152WK
M1D	MA160		
NT	DAN202K		
S1A	1SR143		
6.8	MA3068	56M	MA3056M
6.8M	MA3068M	75L	MA3075L
9.1	MA3091	82M	MA3082M
		91M	MA3091M
272	D2.7M-B2	362	D3.6M-B2
27	RD2.7M-B	512	RD5.1M-B2
30	RD3.0M-B	621	RD6.2M-B1
56	RD5.6M-B	683	RD6.8M-B3
91	RD9.1M-B	102	RD10M-B2
		163	RD16M-B3
		182	RD18M-B2

3. Leadless Resistors

The resistor value is indicated on the surfce of the component, using a three digit number or one alphabet letter and one numeral.

(1) Identification for three digit numbers.

Read this code following the same procedure as when reading the color code on discrete resistors.

Example:

Code	Value
330	$33 \times 10^0 =$ 33 ohms
561	$56 \times 10^1 =$ 560 ohms
123	$12 \times 10^3 =$ 12K ohms
1R2	$1 + 0.2 =$ 1.2 ohms (R: Decimal point)

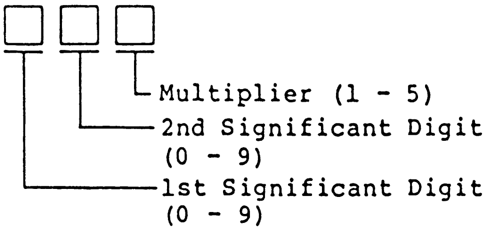


Fig.5-3 Leadless Resistor Code

(2) Identification for one alphabet letter and one numeral. Use this code and the following chart for component identification.

Letter	Value	Letter	Value
A	1	N	3.3
C	1.2	Q	3.9
E	1.5	S	4.7
G	1.8	U	5.6
J	2.2	W	6.8
L	2.7	Y	8.2

Example:

Code	Value
A1	$1 \times 10^1 =$ 10 ohms
G2	$1.8 \times 10^2 =$ 180 ohms
L3	$2.7 \times 10^3 =$ 2700 ohms
S4	$4.7 \times 10^4 =$ 47K ohms
W5	$6.8 \times 10^5 =$ 680K ohms

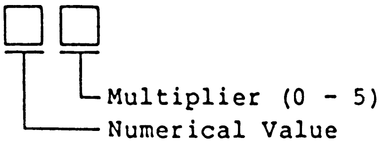
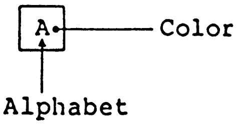


Fig.5-4 Leadless Resistor Code

4. Leadless Capacitors

The capacitive value is indicated on the surface of the component, using body color and one alphabet, or one alphabet and one numeral.

(1) Identification for body color and one alphabet.



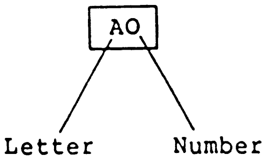
Body Color	Alphabet	Value
Red	A	1(PF)
	C	2
	E	3
	G	4
	J	5
	L	6
	N	7
	Q	8
	S	9
Black	A	10(PF)
	C	12
	Y	82
	E	15
	G	18
	J	22
	L	27
	N	33
	Q	39
	S	47
	U	56
	W	68
	Y	82

Body Color	Alphabet	Value
Blue	A	100(PF)
	C	120
	E	150
	G	180
	J	220
	L	270
	N	330
	Q	390
	S	470
	U	560
	W	680
	Y	820
White	A	0.001(µF)
	E	0.0015
	J	0.0022
	L	0.0027
	N	0.0033
	S	0.0047
	W	0.0068
Green	A	0.01(µF)
	E	0.015
	J	0.022
	N	0.033
	S	0.047
	U	0.056
	W	0.068
	Y	0.082
Yellow	A	0.1(µF)

Example:

Color	Code	Value
Red	A	1PF
Black	A	10PF

(2) Identification for one alphabet and one numeral.



Letter /Number	Value	Letter /Number	Value
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f0	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
A1	10(PF)	U2	560
C1	12	W2	680
E1	15	Y2	820
G1	18	A3	0.001(μF)
J1	22	E3	0.0015
L1	27	J3	0.0022
N1	33	N3	0.0033
Q1	39	S3	0.0047
S1	47	W3	0.0068
U1	56	A4	0.01(μF)
W1	68	E4	0.015
Y1	82	J4	0.022
		N4	0.033
		S4	0.047
		U4	0.056
		W4	0.068
		A5	0.1(μF)

Example:

Letter /Number	Value
A0	1PF
A1	10PF

5. Leadless Jumper

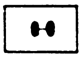
The leadless jumper is indicated as shown below.

(1) 000

(2) 00

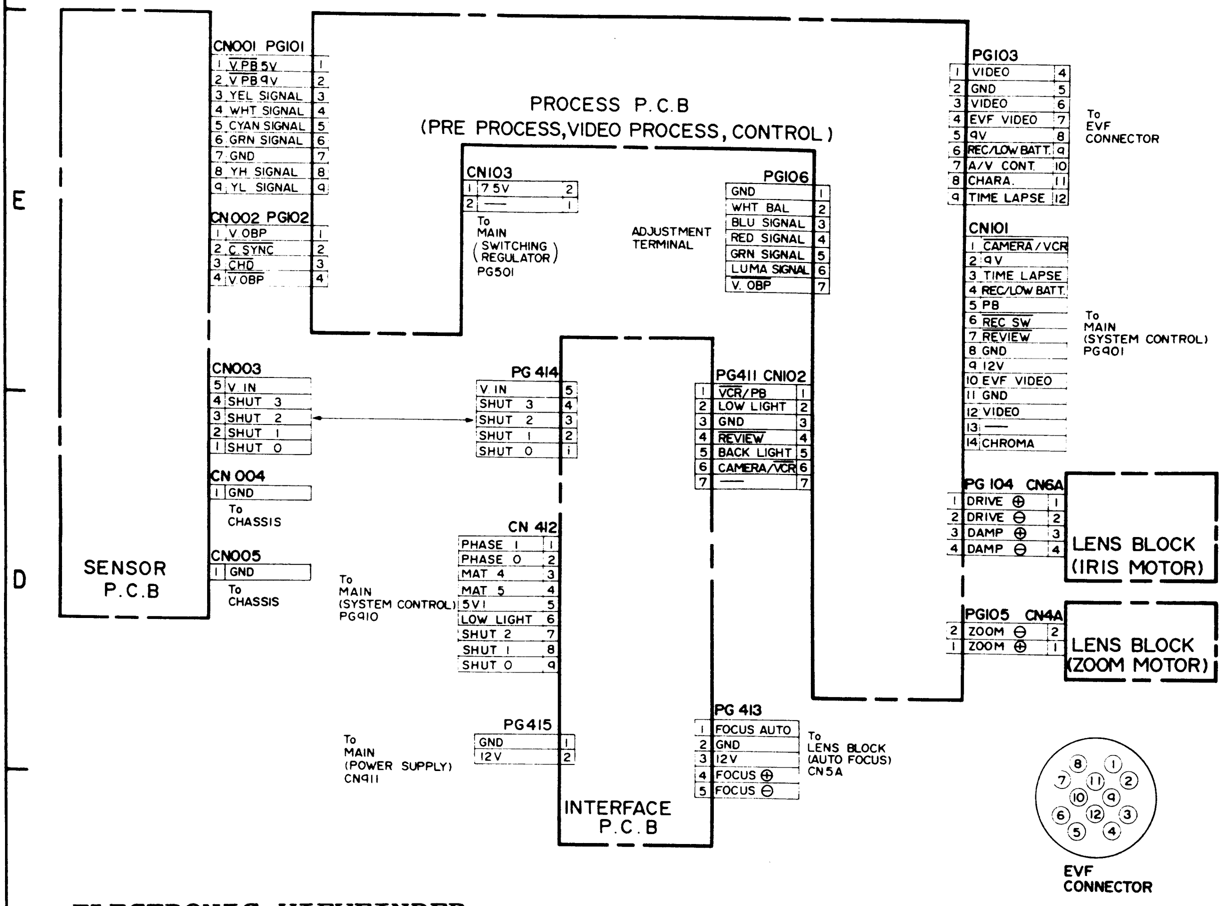
(3) 0

(4)



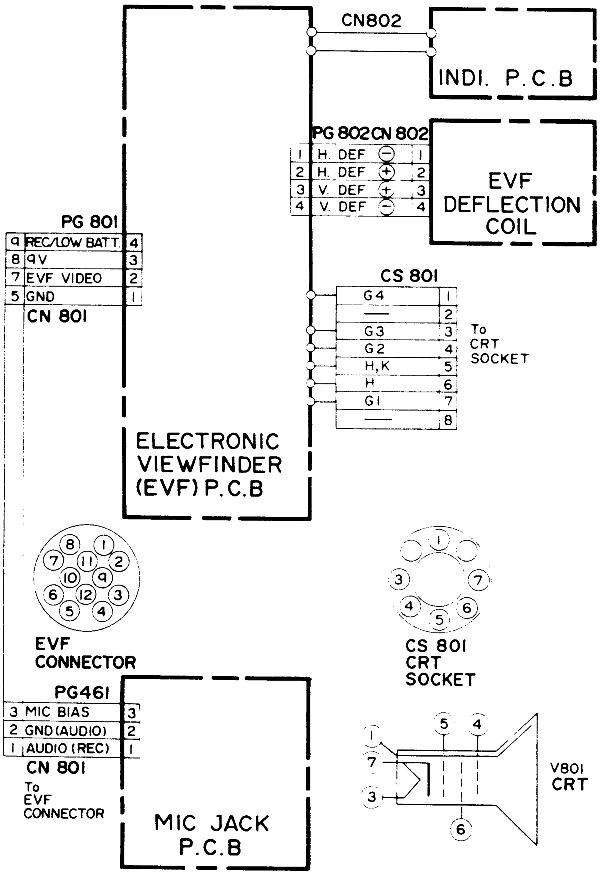
CIRCUIT BOARD CONNECTION DIAGRAM LEITERPLATTEN-ANSCHLUSSDIAGRAMME

• CAMERA KAMERA



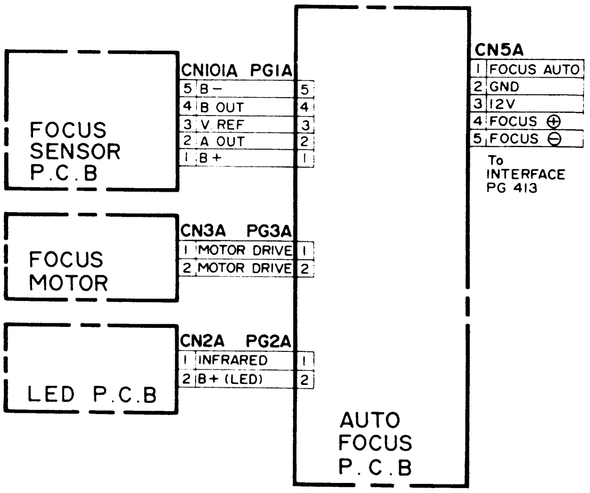
SENSOR P.C.B
CN001 PG101
1 V.PB 5V 1
2 V.PB 9V 2
3 YEL SIGNAL 3
4 WHT SIGNAL 4
5 CYAN SIGNAL 5
6 GRN SIGNAL 6
7 GND 7
8 YH SIGNAL 8
9 YL SIGNAL 9
CN002 PG102
1 V OBP 1
2 C.SYNC 2
3 CHD 3
4 V OBP 4
CN003
5 V IN
4 SHUT 3
3 SHUT 2
2 SHUT 1
1 SHUT 0
CN 004
1 GND
To CHASSIS
CN005
1 GND
To CHASSIS
PROCESS P.C.B
(PRE PROCESS,VIDEO PROCESS, CONTROL)
CN103
1 7.5V 2
2 — 1
To MAIN (SWITCHING REGULATOR) PG501
ADJUSTMENT TERMINAL
PG106
GND 1
WHT BAL 2
BLU SIGNAL 3
RED SIGNAL 4
GRN SIGNAL 5
LUMA SIGNAL 6
V. OBP 7
PG103
1 VIDEO 4
2 GND 5
3 VIDEO 6
4 EVF VIDEO 7
5 9V 8
6 REC/LOW BATT. 9
7 A/V CONT. 10
8 CHARA. 11
9 TIME LAPSE 12
To EVF CONNECTOR
CN101
1 CAMERA/VCR
2 9V
3 TIME LAPSE
4 REC/LOW BATT.
5 PB
6 REC SW
7 REVIEW
8 GND
9 12V
10 EVF VIDEO
11 GND
12 VIDEO
13 —
14 CHROMA
To MAIN (SYSTEM CONTROL) PG901
PG 414
V IN 5
SHUT 3 4
SHUT 2 3
SHUT 1 2
SHUT 0 1
CN 412
PHASE 1 1
PHASE 0 2
MAT 4 3
MAT 5 4
5V1 5
LOW LIGHT 6
SHUT 2 7
SHUT 1 8
SHUT 0 9
To MAIN (SYSTEM CONTROL) PG910
PG415
GND 1
12V 2
To MAIN (POWER SUPPLY) CN911
INTERFACE P.C.B
PG411 CN102
1 VCR/PB 1
2 LOW LIGHT 2
3 GND 3
4 REVIEW 4
5 BACK LIGHT 5
6 CAMERA/VCR 6
7 — 7
PG 413
1 FOCUS AUTO
2 GND
3 12V
4 FOCUS ⊕
5 FOCUS ⊖
To LENS BLOCK (AUTO FOCUS) CN5A
PG 104 CN6A
1 DRIVE ⊕ 1
2 DRIVE ⊖ 2
3 DAMP ⊕ 3
4 DAMP ⊖ 4
LENS BLOCK (IRIS MOTOR)
PG105 CN4A
2 ZOOM ⊖ 2
1 ZOOM ⊕ 1
LENS BLOCK (ZOOM MOTOR)
8 1 7 11 2 10 9 6 12 3 5 4
EVF CONNECTOR

• ELECTRONIC VIEWFINDER
• ELEKTRONISCHER SUCHER



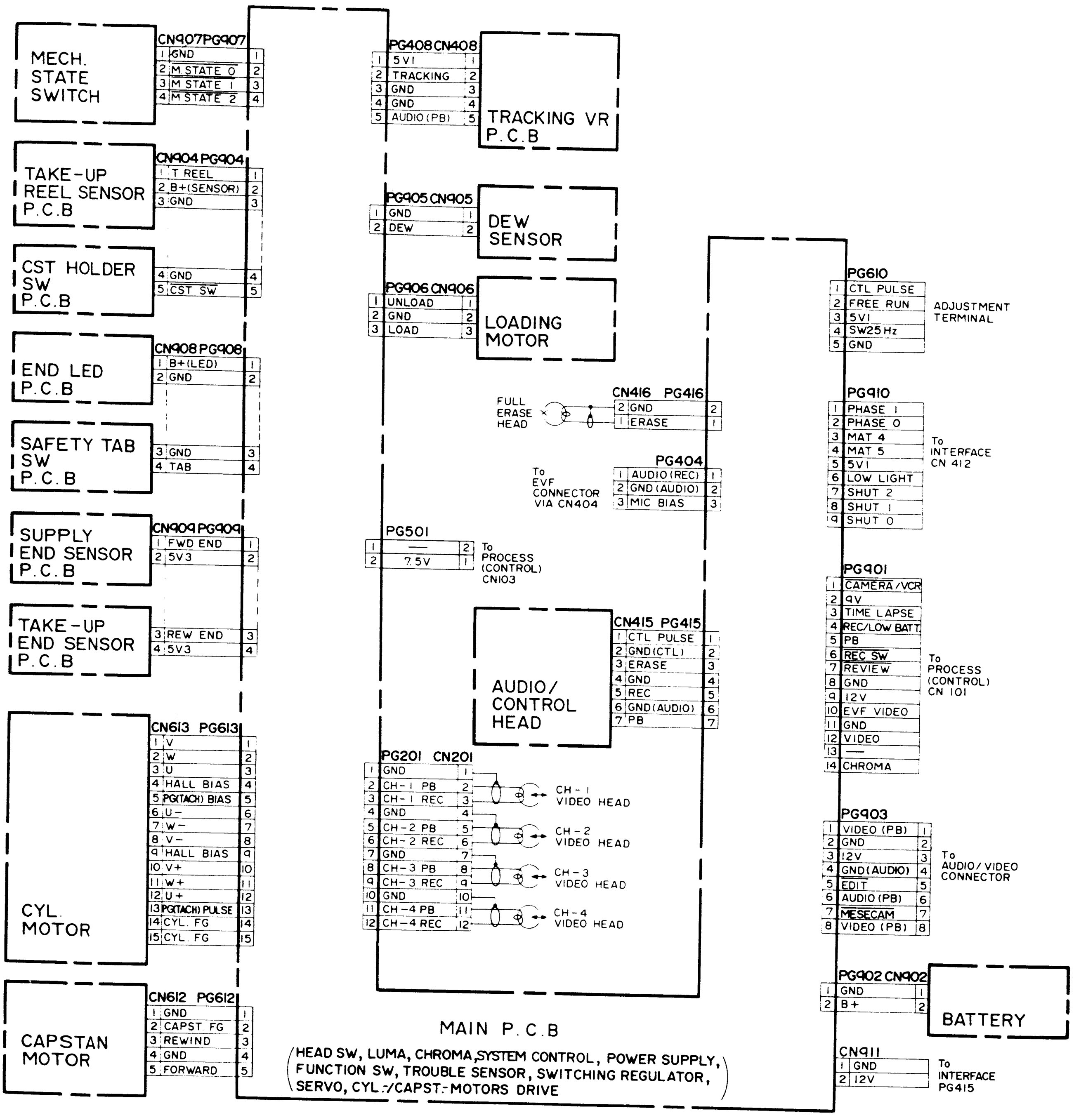
CN802
INDI. P.C.B
PG 802 CN 802
1 H. DEF ⊖ 1
2 H. DEF ⊕ 2
3 V. DEF ⊕ 3
4 V. DEF ⊖ 4
EVF DEFLECTION COIL
PG 801
9 REC/LOW BATT. 4
8 9V 3
7 EVF VIDEO 2
5 GND 1
CN 801
CS 801
G4 1
— 2
G3 3
G2 4
H,K 5
H 6
G1 7
— 8
To CRT SOCKET
ELECTRONIC VIEWFINDER (EVF) P.C.B
8 1 7 11 2 10 9 6 12 3 5 4
EVF CONNECTOR
1 3 7 4 5 6
CS 801 CRT SOCKET
PG461
3 MIC BIAS 3
2 GND (AUDIO) 2
1 AUDIO (REC) 1
CN 801
To EVF CONNECTOR
MIC JACK P.C.B
5 4 1 7 3 6
V801 CRT

• AUTO FOCUS AUTOFOKUS



FOCUS SENSOR P.C.B
CN101A PG1A
5 B– 5
4 B OUT 4
3 V REF 3
2 A OUT 2
1 B+ 1
FOCUS MOTOR
CN3A PG3A
1 MOTOR DRIVE 1
2 MOTOR DRIVE 2
LED P.C.B
CN2A PG2A
1 INFRARED 1
2 B+ (LED) 2
AUTO FOCUS P.C.B
CN5A
1 FOCUS AUTO
2 GND
3 12V
4 FOCUS ⊕
5 FOCUS ⊖
To INTERFACE PG 413

• VTR VIDEORECORDER


MECH. STATE SWITCH
CN907 PG907
1 GND 1
2 M STATE 0 2
3 M STATE 1 3
4 M STATE 2 4
TAKE-UP REEL SENSOR P.C.B
CN904 PG904
1 T REEL 1
2 B+(SENSOR) 2
3 GND 3
CST HOLDER SW P.C.B
4 GND 4
5 CST SW 5
END LED P.C.B
CN908 PG908
1 B+(LED) 1
2 GND 2
SAFETY TAB SW P.C.B
3 GND 3
4 TAB 4
SUPPLY END SENSOR P.C.B
CN909 PG909
1 FWD END 1
2 5V3 2
TAKE-UP END SENSOR P.C.B
3 REW END 3
4 5V3 4
CYL. MOTOR
CN613 PG613
1 V 1
2 W 2
3 U 3
4 HALL BIAS 4
5 PG(TACH) BIAS 5
6 U- 6
7 W- 7
8 V- 8
9 HALL BIAS 9
10 V+ 10
11 W+ 11
12 U+ 12
13 PG(TACH) PULSE 13
14 CYL. FG 14
15 CYL. FG 15
CAPSTAN MOTOR
CN612 PG612
1 GND 1
2 CAPST FG 2
3 REWIND 3
4 GND 4
5 FORWARD 5
PG408 CN408
1 5V1 1
2 TRACKING 2
3 GND 3
4 GND 4
5 AUDIO (PB) 5
TRACKING VR P.C.B
PG905 CN905
1 GND 1
2 DEW 2
DEW SENSOR
PG906 CN906
1 UNLOAD 1
2 GND 2
3 LOAD 3
LOADING MOTOR
FULL ERASE HEAD
CN416 PG416
2 GND 2
1 ERASE 1
To EVF CONNECTOR VIA CN404
PG404
1 AUDIO (REC) 1
2 GND (AUDIO) 2
3 MIC BIAS 3
PG501
1 — 2
2 7.5V 1
To PROCESS (CONTROL) CN103
AUDIO/ CONTROL HEAD
CN415 PG415
1 CTL PULSE 1
2 GND (CTL) 2
3 ERASE 3
4 GND 4
5 REC 5
6 GND (AUDIO) 6
7 PB 7
PG201 CN201
1 GND 1
2 CH-1 PB 2
3 CH-1 REC 3
4 GND 4
5 CH-2 PB 5
6 CH-2 REC 6
7 GND 7
8 CH-3 PB 8
9 CH-3 REC 9
10 GND 10
11 CH-4 PB 11
12 CH-4 REC 12
CH-1 VIDEO HEAD
CH-2 VIDEO HEAD
CH-3 VIDEO HEAD
CH-4 VIDEO HEAD
PG610
1 CTL PULSE
2 FREE RUN
3 5V1
4 SW25 Hz
5 GND
ADJUSTMENT TERMINAL
PG910
1 PHASE 1
2 PHASE 0
3 MAT 4
4 MAT 5
5 5V1
6 LOW LIGHT
7 SHUT 2
8 SHUT 1
9 SHUT 0
To INTERFACE CN 412
PG901
1 CAMERA/VCR
2 9V
3 TIME LAPSE
4 REC/LOW BATT
5 PB
6 REC SW
7 REVIEW
8 GND
9 12V
10 EVF VIDEO
11 GND
12 VIDEO
13 —
14 CHROMA
To PROCESS (CONTROL) CN 101
PG903
1 VIDEO (PB) 1
2 GND 2
3 12V 3
4 GND (AUDIO) 4
5 EDIT 5
6 AUDIO (PB) 6
7 MESECAM 7
8 VIDEO (PB) 8
To AUDIO/VIDEO CONNECTOR
PG902 CN902
1 GND 1
2 B+ 2
BATTERY
CN911
1 GND
2 12V
To INTERFACE PG415
MAIN P.C.B
(HEAD SW, LUMA, CHROMA, SYSTEM CONTROL, POWER SUPPLY, FUNCTION SW, TROUBLE SENSOR, SWITCHING REGULATOR, SERVO, CYL.-/CAPST.-MOTORS DRIVE)

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LUMINANCE	5-31
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PRE PROCESS	5-11
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SENSOR	5-7
SERVO	5-25
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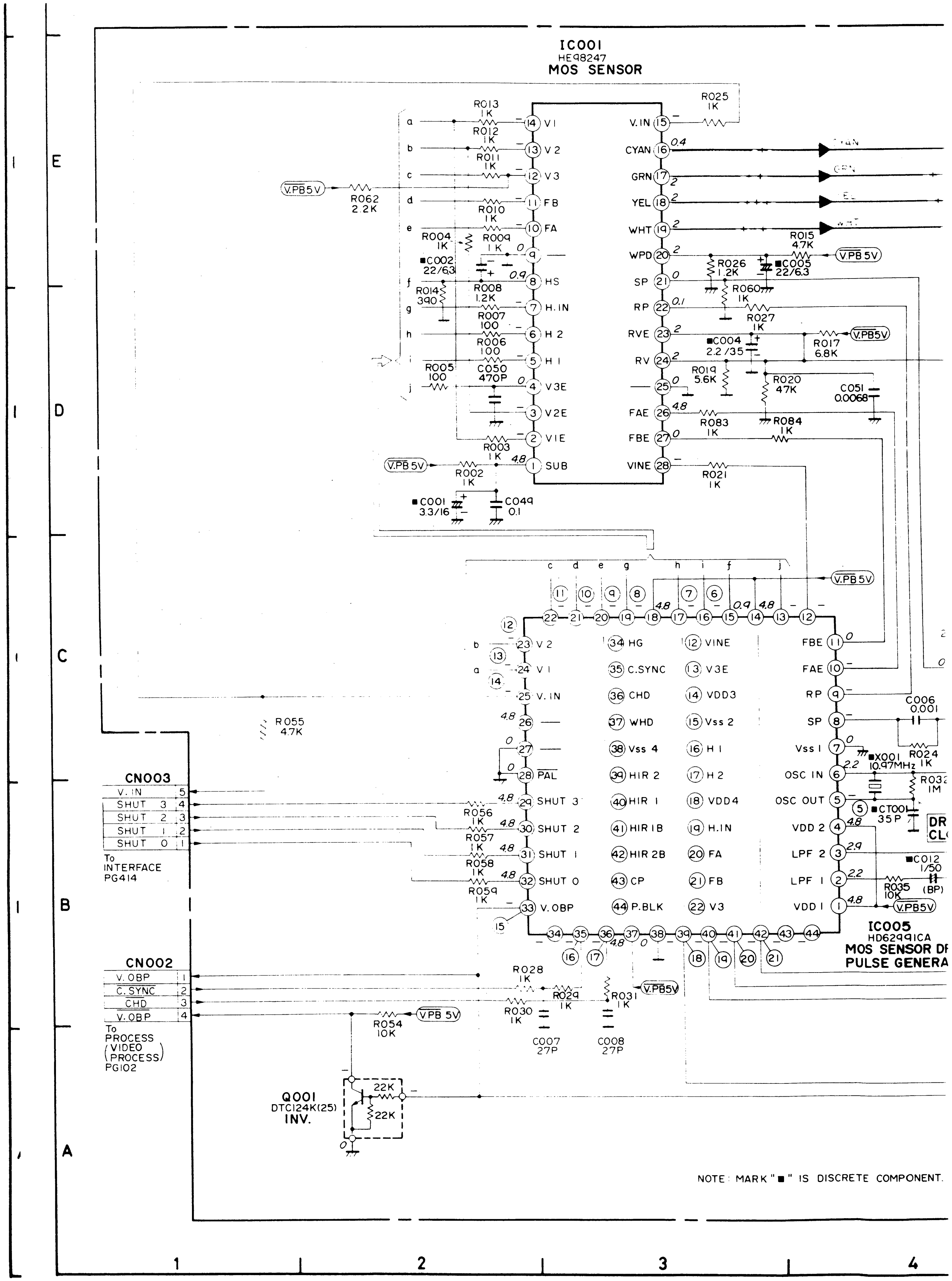
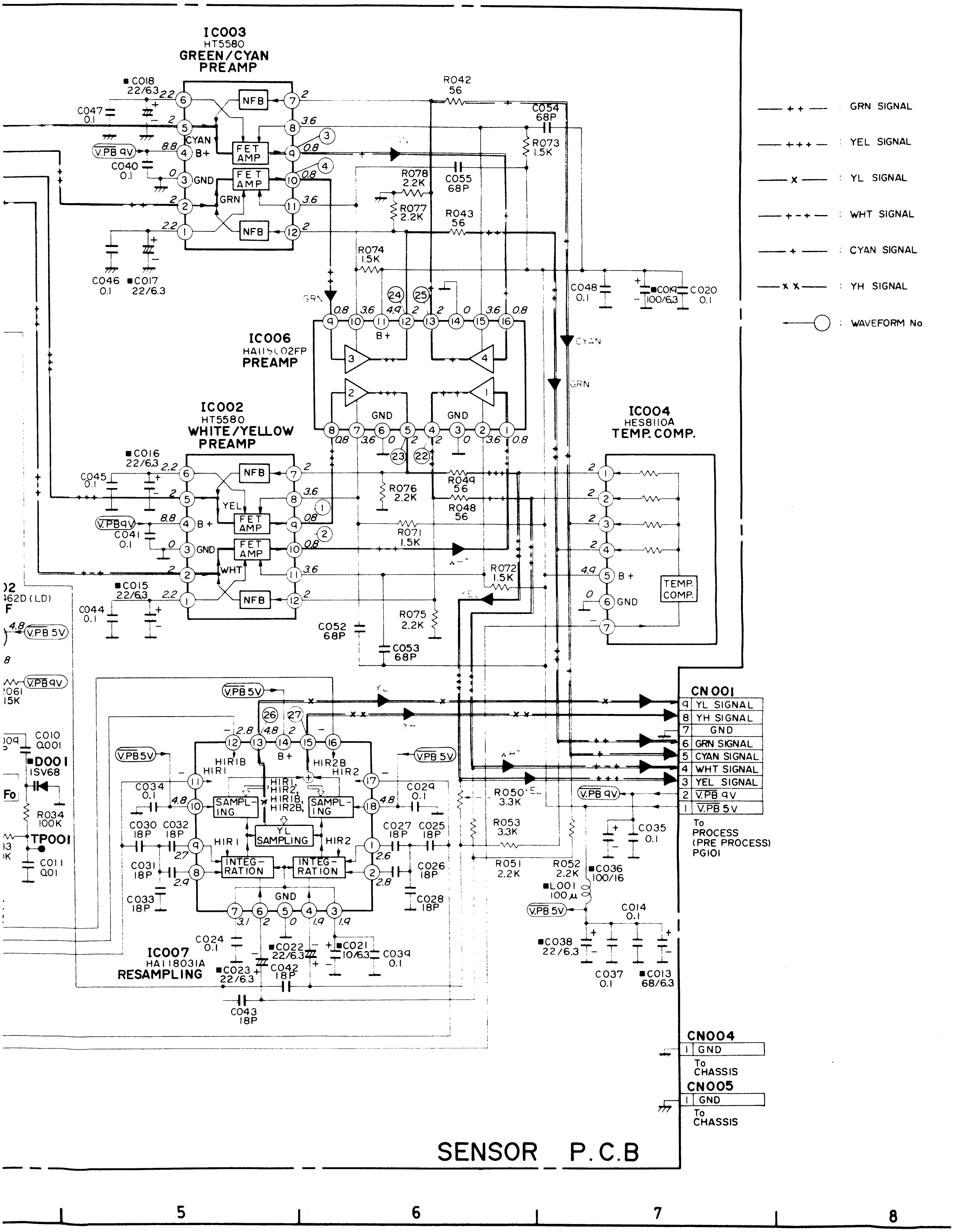
VIDEO PROCESS	5-13

C SENSOR SCHEMATIC DIAGRAM SENSOR-SCHALTPLAN

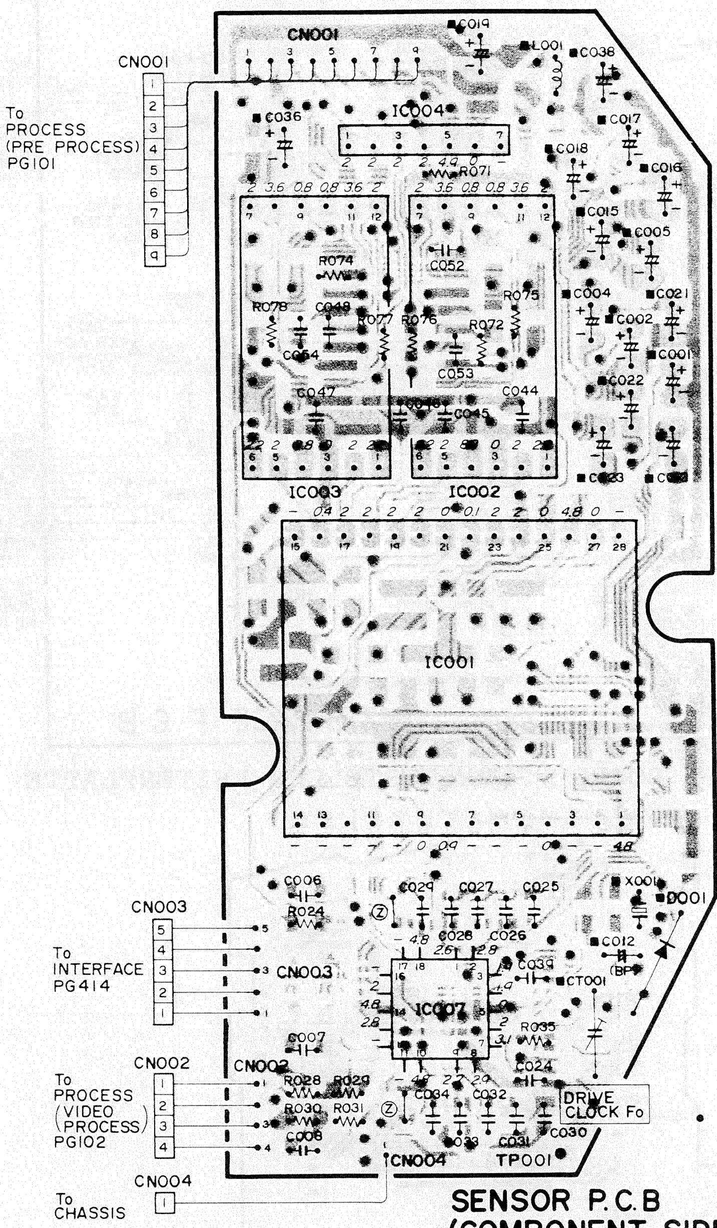

IC001
HE98247
MOS SENSOR
R013 1K
R012 1K
R011 1K
R010 1K
R009 1K
R008 1.2K
R007 100
R006 100
R005 100
R004 1K
R003 1K
R002 1K
R014 390
R062 2.2K
V.PB5V
■C002 22/6.3
C050 470P
■C001 3.3/16
C049 0.1
V1
V2
V3
FB
FA
HS
H.IN
H2
H1
V3E
V2E
V1E
SUB
V.IN
CYAN
GRN
YEL
WHT
WPD
SP
RP
RVE
RV
FAE
FBE
VINE
R025 1K
R015 4.7K
R026 1.2K
■C005 22/6.3
R060 1K
R027 1K
R017 6.8K
■C004 2.2/35
R019 5.6K
R020 47K
C051 0.0068
R083 1K
R084 1K
R021 1K
a
b
c
d
e
f
g
h
i
j
CN003
V. IN
SHUT 3
SHUT 2
SHUT 1
SHUT 0
To INTERFACE PG414
R055 4.7K
R056 1K
R057 1K
R058 1K
R059 1K
HG
C.SYNC
CHD
WHD
Vss 4
HIR 2
HIR 1
HIR 1B
HIR 2B
CP
P.BLK
VINE
V3E
VDD3
Vss 2
H1
H2
VDD4
H.IN
FA
FB
V3
PAL
V.OBP
FBE
FAE
RP
SP
Vss 1
OSC IN
OSC OUT
VDD 2
LPF 2
LPF 1
VDD 1
C006 0.001
■X001 10.97MHz
R024 1K
R032 1M
■CT001 35P
■C012 1/50 (BP)
R035 10K
IC005
HD62991CA
MOS SENSOR DR
PULSE GENERA
CN002
V.OBP
C.SYNC
CHD
V.OBP
To PROCESS (VIDEO PROCESS) PG102
R028 1K
R029 1K
R030 1K
R031 1K
C007 27P
C008 27P
R054 10K
Q001
DTC124K(25)
INV.
22K
22K
1
2
3
4
A
B
C
D
E

NOTE: MARK "■" IS DISCRETE COMPONENT.


IC003
HT5580
GREEN/CYAN PREAMP
IC006
HA11502FP
PREAMP
IC002
HT5580
WHITE/YELLOW PREAMP
IC004
HES8110A
TEMP. COMP.
IC007
HA118031A
RESAMPLING
NFB
FET AMP
CYAN
GRN
YEL
WHT
B+
GND
TEMP. COMP.
SAMPL-ING
YL SAMPLING
INTEG-RATION
HIR1
HIR1B
HIR2
HIR2B
V.PB 9V
V.PB 5V
C018 22/6.3
C047 0.1
C040 0.1
C046 0.1
C017 22/6.3
C016 22/6.3
C045 0.1
C041 0.1
C015 22/6.3
C044 0.1
R042 56
C054 68P
R073 1.5K
R078 2.2K
C055 68P
R077 2.2K
R043 56
R074 1.5K
C048 0.1
C019 100/6.3
C020 0.1
R076 2.2K
R049 56
R048 56
R071 1.5K
R072 1.5K
R075 2.2K
C052 68P
C053 68P
C034 0.1
C030 18P
C032 18P
C031 18P
C033 18P
C029 0.1
C027 18P
C025 18P
C026 18P
C028 18P
C024 0.1
C022 22/6.3
C021 10/6.3
C039 0.1
C023 22/6.3
C042 18P
C043 18P
R050 3.3K
R053 3.3K
R051 2.2K
R052 2.2K
C036 100/16
L001 100μ
C035 0.1
C014 0.1
C038 22/6.3
C037 0.1
C013 68/6.3
D001
1SV68
R034 100K
TP001
C010 0.001
C011 0.01
CN001
9 YL SIGNAL
8 YH SIGNAL
7 GND
6 GRN SIGNAL
5 CYAN SIGNAL
4 WHT SIGNAL
3 YEL SIGNAL
2 V.PB 9V
1 V.PB 5V
To PROCESS (PRE PROCESS) PG101
CN004
1 GND
To CHASSIS
CN005
1 GND
To CHASSIS
++ : GRN SIGNAL
+++ : YEL SIGNAL
x : YL SIGNAL
+-+ : WHT SIGNAL
+ : CYAN SIGNAL
x x : YH SIGNAL
○ : WAVEFORM No.
SENSOR P.C.B
5
6
7
8

SENSOR CIRCUIT BOARD (COMPONENT SIDE)
SENSOR-LEITERPLATTE (BESTUCKÜNGSSEITE)

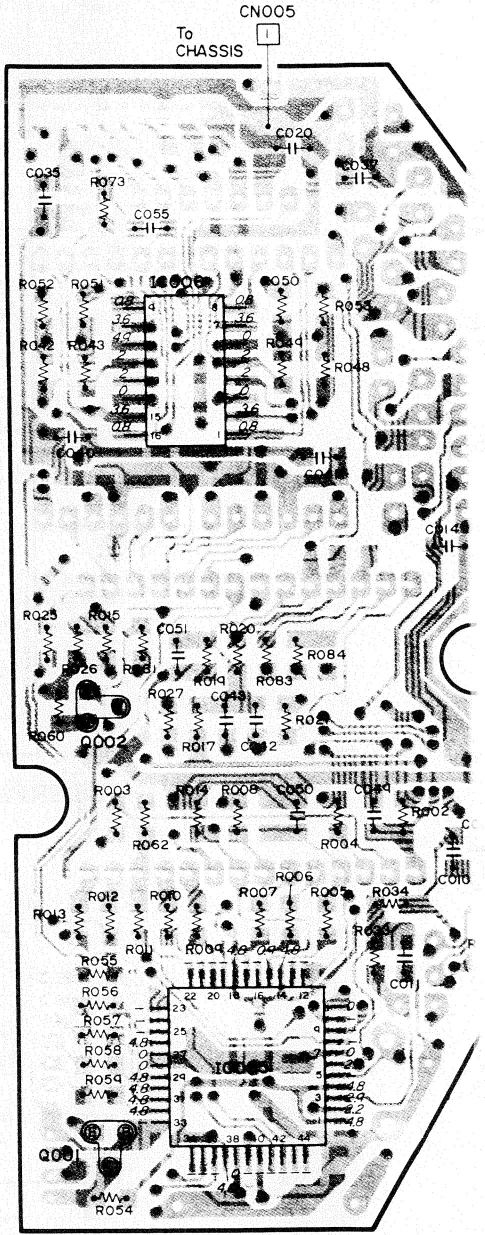
SENSOR CIRCUIT BOARD (SOLDER S
SENSOR-LEITERPLATTE (LEITERBAH


CN001
To PROCESS (PRE PROCESS) PG101
IC004
IC003
IC002
IC001
CN003
To INTERFACE PG414
IC007
CN002
To PROCESS (VIDEO PROCESS) PG102
CN004
To CHASSIS
X001
D001
CT001
DRIVE CLOCK Fo
TP001

SENSOR P.C.B
(COMPONENT SIDE)

NOTE : MARK " ■ " IS DISCRETE COMPONENT.
: MARK " Ⓩ " IS LEADLESS(CHIP) JUMPER.

: Soldered side
: Parts side
● : Through hole


CN005
To CHASSIS
IC006
IC005
Q001
Q002

SENSOR P.C.B
(SOLDER SIDE

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SWITCHING REGULATOR	5-25
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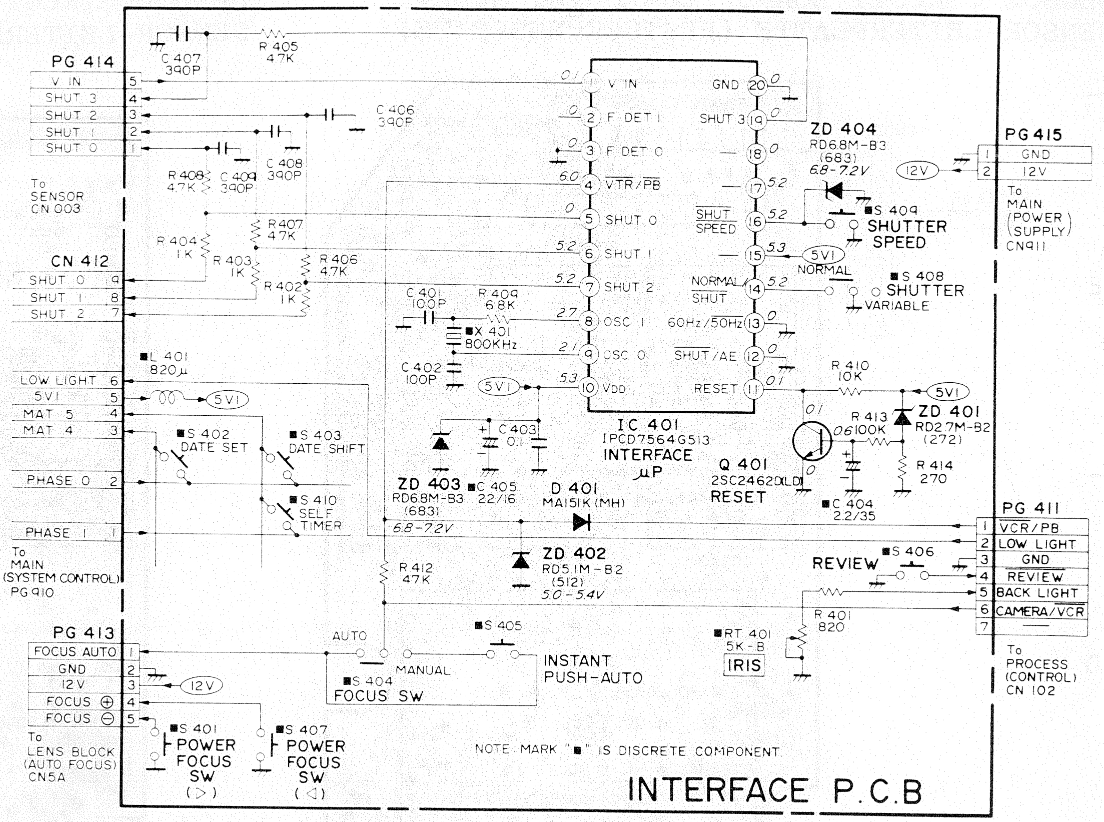
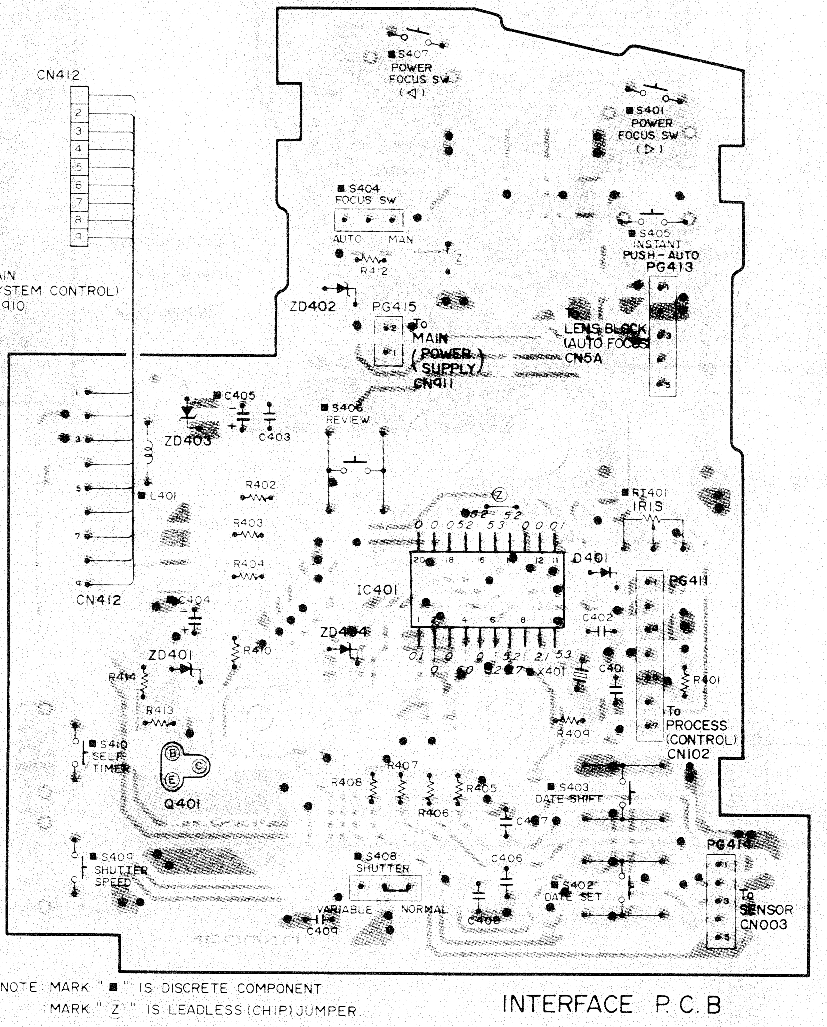
TRACKING VR	5-34
VIDEO PROCESS	5-13

INTERFACE SCHEMATIC DIAGRAM SCHNITTSTELLEN-SCHALTPLAN


PG 414
V IN
SHUT 3
SHUT 2
SHUT 1
SHUT 0
To SENSOR CN 003
C 407 390P
R 405 4.7K
C 406 390P
C 408 390P
R 408 4.7K
C 409 390P
R 407 4.7K
R 404 1K
R 403 1K
R 406 4.7K
R 402 1K
CN 412
SHUT 0
SHUT 1
SHUT 2
LOW LIGHT
5V1
MAT 5
MAT 4
PHASE 0
PHASE 1
To MAIN (SYSTEM CONTROL) PG910
■L 401 820μ
■S 402 DATE SET
■S 403 DATE SHIFT
■S 410 SELF TIMER
V IN
F DET 1
F DET 0
VTR/PB
SHUT 0
SHUT 1
SHUT 2
OSC 1
OSC 0
VDD
GND
SHUT 3
SHUT SPEED
NORMAL SHUT
60Hz/50Hz
SHUT/AE
RESET
C 401 100P
R 409 6.8K
■X 401 800KHz
C 402 100P
C 403 0.1
ZD 403 RD6.8M-B3 (683) 6.8-7.2V
■C 405 22/16
D 401 MA151K (MH)
IC 401 IPCD7564G513 INTERFACE μP
Q 401 2SC2462(DLD) RESET
ZD 404 RD6.8M-B3 (683) 6.8-7.2V
■S 409 SHUTTER SPEED
NORMAL
■S 408 SHUTTER VARIABLE
R 410 10K
R 413 100K
ZD 401 RD2.7M-B2 (272)
R 414 270
■C 404 2.2/35
PG 415
GND
12V
To MAIN (POWER SUPPLY) CN911
PG 411
VCR/PB
LOW LIGHT
GND
REVIEW
BACK LIGHT
CAMERA/VCR
To PROCESS (CONTROL) CN 102
ZD 402 RD5.1M-B2 (512) 5.0-5.4V
R 412 4.7K
REVIEW
■S 406
R 401 820
■RT 401 5K-B IRIS
PG 413
FOCUS AUTO
GND
12V
FOCUS ⊕
FOCUS ⊖
To LENS BLOCK (AUTO FOCUS) CN5A
AUTO
MANUAL
■S 404 FOCUS SW
■S 405 INSTANT PUSH-AUTO
■S 401 POWER FOCUS SW (▷)
■S 407 POWER FOCUS SW (◁)
NOTE: MARK "■" IS DISCRETE COMPONENT.
INTERFACE P.C.B

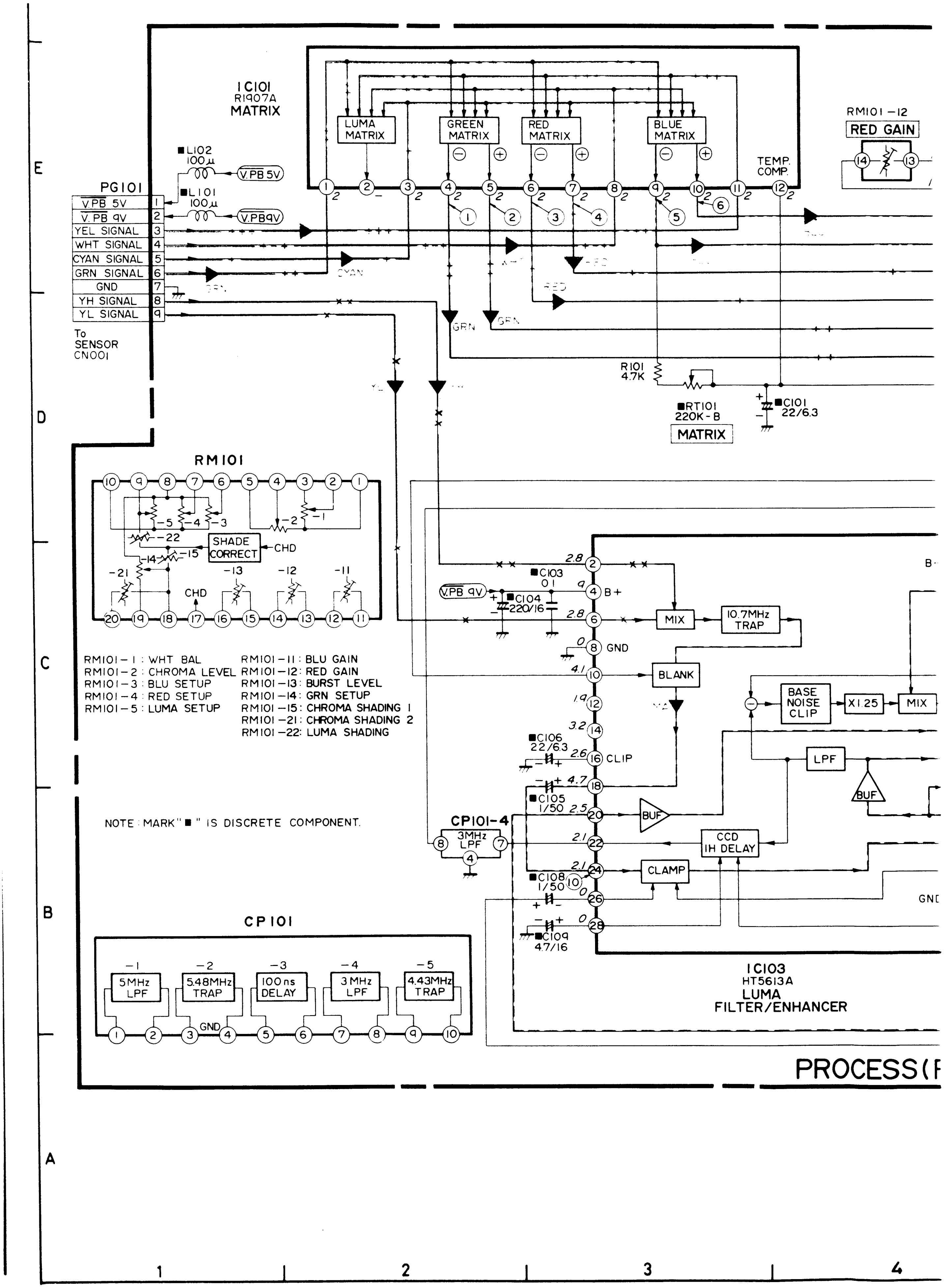
INTERFACE CIRCUIT BOARD SCHNITTSTELLEN-LEITERPLATTE


CN412
To MAIN (SYSTEM CONTROL) PG910
■S407 POWER FOCUS SW (◁)
■S401 POWER FOCUS SW (▷)
■S404 FOCUS SW
AUTO
MAN
R412
■S405 INSTANT PUSH-AUTO
PG413
ZD402
PG415
To MAIN (POWER SUPPLY) CN911
To LENS BLOCK (AUTO FOCUS) CN5A
■C405
ZD403
C403
■S406 REVIEW
L401
R402
R403
R404
■RT401 IRIS
IC401
D401
PG411
C404
ZD404
C402
ZD401
R410
X401
C401
R401
R414
R413
To PROCESS (CONTROL) CN102
R409
■S410 SELF TIMER
Q401
R408
R407
R405
R406
■S403 DATE SHIFT
C407
■S409 SHUTTER SPEED
■S408 SHUTTER
VARIABLE
NORMAL
C406
C408
C409
■S402 DATE SET
PG414
To SENSOR CN003

NOTE: MARK "■" IS DISCRETE COMPONENT.
:MARK "Z" IS LEADLESS (CHIP) JUMPER.

INTERFACE P.C.B

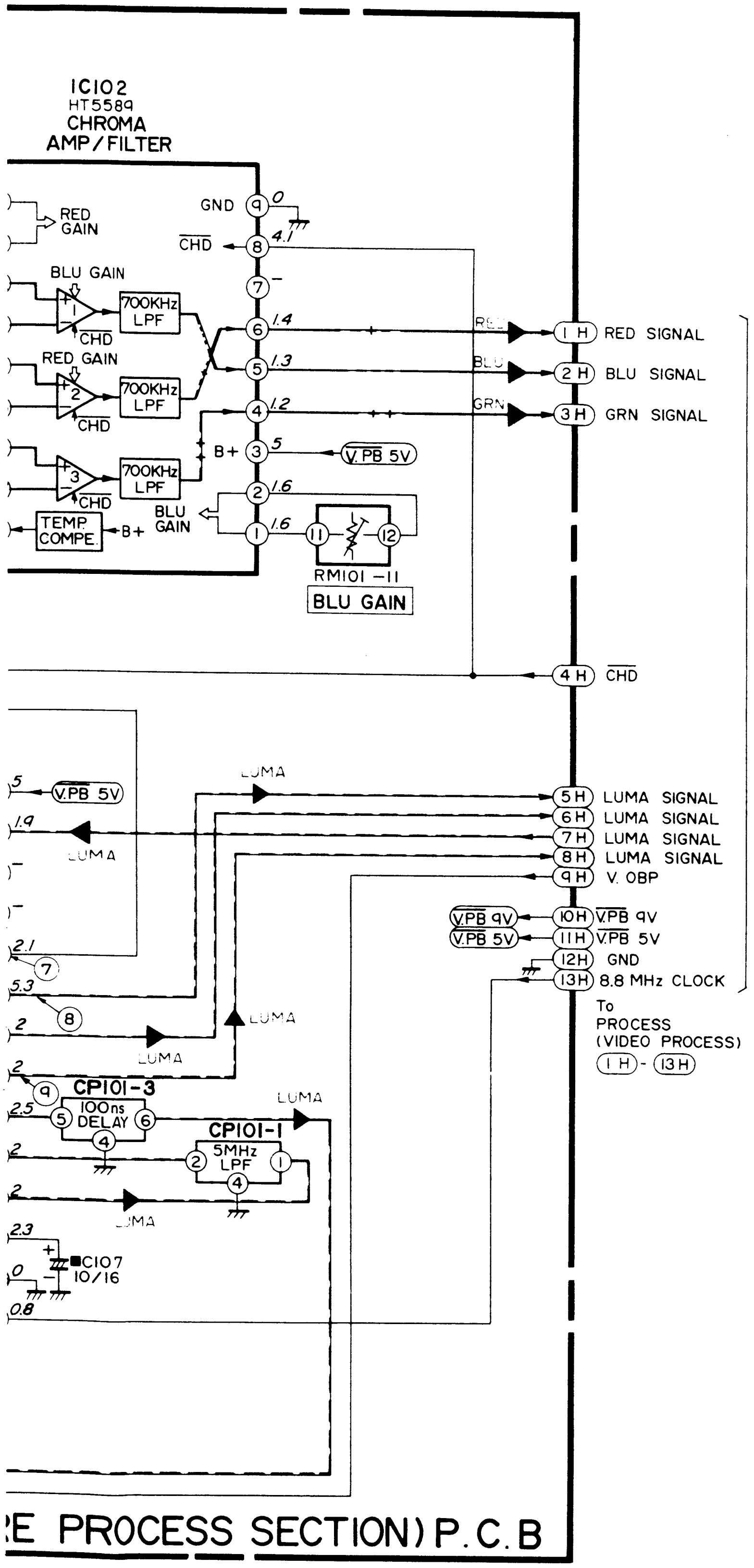
PROCESS (PRE PROCESS) SCHEMATIC DIAGRAM   PROZESS (VORPROZESS)-SCHALTPLAN


IC101
R1907A
MATRIX
LUMA MATRIX
GREEN MATRIX
RED MATRIX
BLUE MATRIX
TEMP. COMP.
RM101-12
RED GAIN
■L102
100µ
V.PB 5V
■L101
100µ
V.PB 9V
PG101
V.PB 5V
V. PB 9V
YEL SIGNAL
WHT SIGNAL
CYAN SIGNAL
GRN SIGNAL
GND
YH SIGNAL
YL SIGNAL
To SENSOR CN001
CYAN
GRN
RED
R101
4.7K
■RT101
220K-B
MATRIX
■C101
22/6.3
RM101
SHADE CORRECT
CHD
■C103
.01
V.PB 9V
■C104
220/16
B+
GND
MIX
10.7MHz TRAP
BLANK
BASE NOISE CLIP
X1.25
MIX
■C106
22/6.3
CLIP
LPF
BUF
■C105
1/50
BUF
CP101-4
3MHz LPF
CCD
IH DELAY
CLAMP
■C108
1/50
■C109
4.7/16
GND
IC103
HT5613A
LUMA
FILTER/ENHANCER
CP101
5MHz LPF
5.48MHz TRAP
100ns DELAY
3MHz LPF
4.43MHz TRAP
GND
PROCESS(F
E
D
C
B
A
1
2
3
4

RM101-1: WHT BAL
RM101-2: CHROMA LEVEL
RM101-3: BLU SETUP
RM101-4: RED SETUP
RM101-5: LUMA SETUP

RM101-11: BLU GAIN
RM101-12: RED GAIN
RM101-13: BURST LEVEL
RM101-14: GRN SETUP
RM101-15: CHROMA SHADING 1
RM101-21: CHROMA SHADING 2
RM101-22: LUMA SHADING

NOTE: MARK "■" IS DISCRETE COMPONENT.


IC102
HT5589
CHROMA
AMP/FILTER
RED GAIN
GND
CHD
BLU GAIN
700KHz LPF
RED GAIN
700KHz LPF
CHD
700KHz LPF
TEMP COMPE
B+
BLU GAIN
B+
V.PB 5V
RM101 -11
BLU GAIN
RED SIGNAL
BLU SIGNAL
GRN SIGNAL
CHD
LUMA
V.PB 5V
LUMA SIGNAL
LUMA SIGNAL
LUMA SIGNAL
LUMA SIGNAL
V. OBP
V.PB 9V
V.PB 5V
GND
8.8 MHz CLOCK
To PROCESS (VIDEO PROCESS) 1H - 13H
CP101-3
100ns DELAY
CP101-1
5MHz LPF
C107 10/16
RE PROCESS SECTION) P.C.B

—◯ : WAVEFORM No.

——++—— : GRN SIGNAL

——-+-—— : RED SIGNAL

——---—— : BLU SIGNAL

——+—— : CYAN SIGNAL

——+-+—— : WHT SIGNAL

——+++—— : YEL SIGNAL

——x x—— : YH SIGNAL

——x—— : YL SIGNAL

------ : LUMA SIGNAL

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MIC JACK	5-22
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SENSOR	5-7
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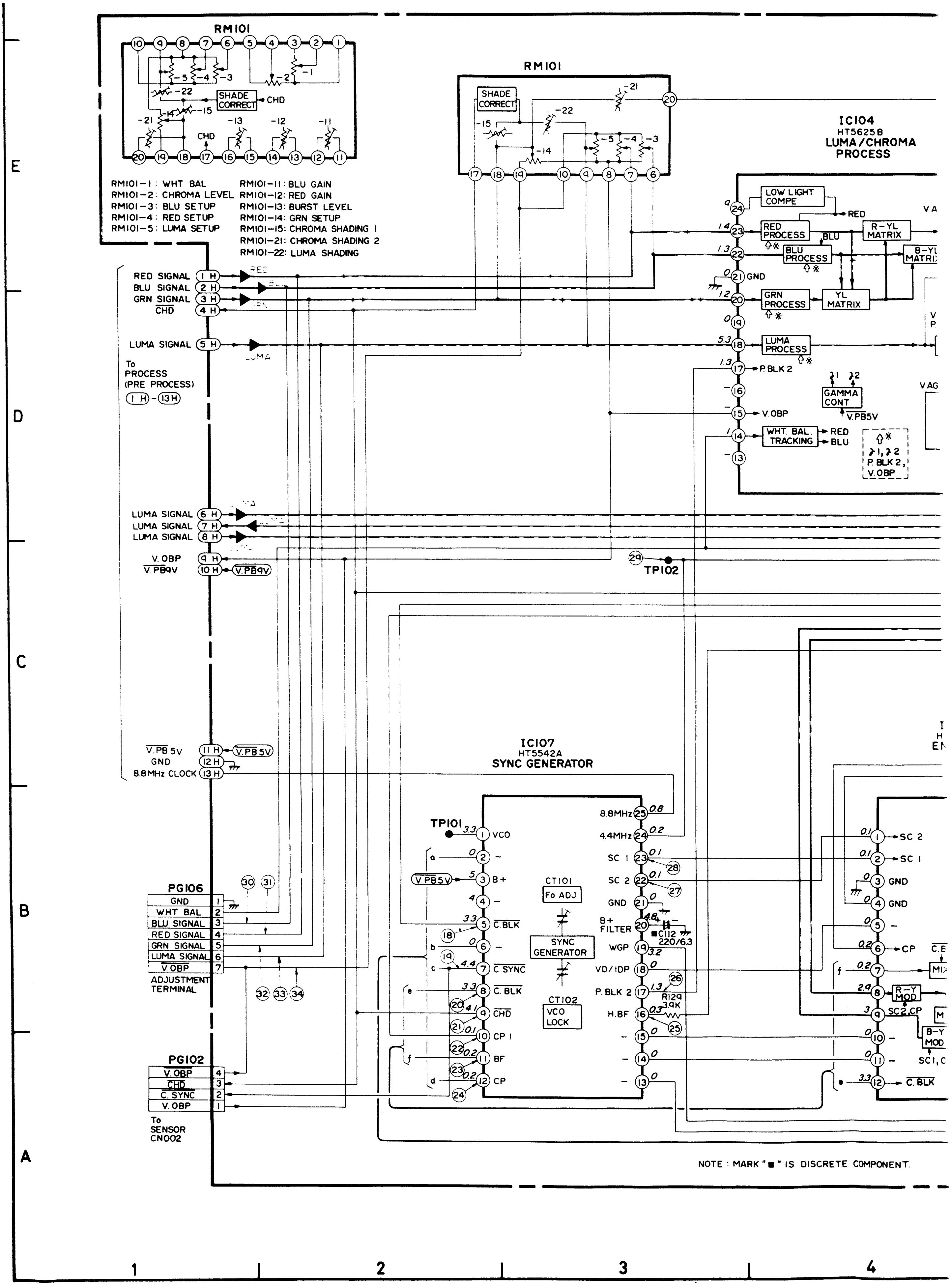
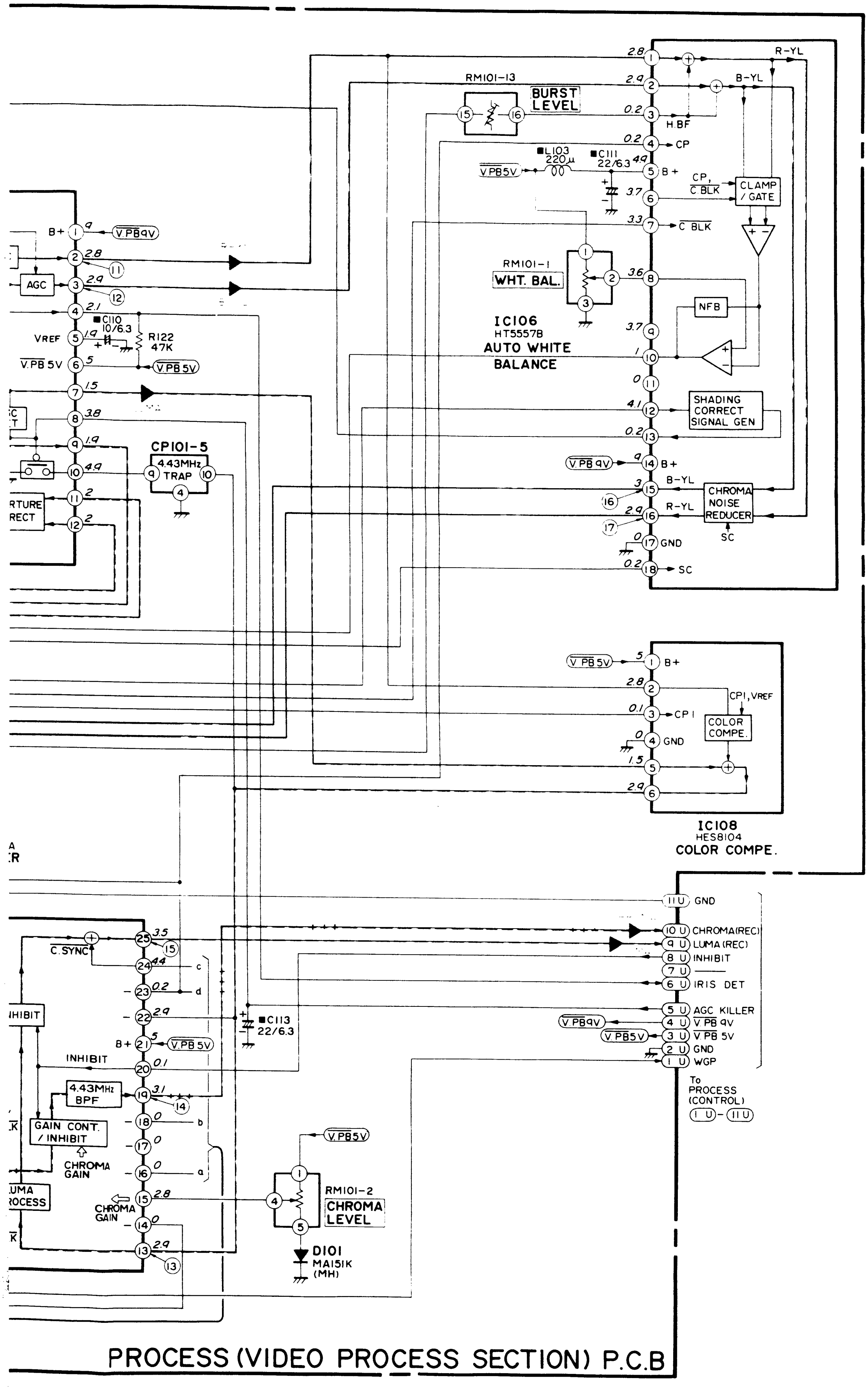
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

PROCESS (VIDEO PROCESS) SCHEMATIC DIAGRAM PROZESS (VIDEOPROZESS)-SCHALTPL


RM101
SHADE CORRECT
CHD
RM101-1 : WHT BAL
RM101-2 : CHROMA LEVEL
RM101-3 : BLU SETUP
RM101-4 : RED SETUP
RM101-5 : LUMA SETUP
RM101-11 : BLU GAIN
RM101-12 : RED GAIN
RM101-13 : BURST LEVEL
RM101-14 : GRN SETUP
RM101-15 : CHROMA SHADING 1
RM101-21 : CHROMA SHADING 2
RM101-22 : LUMA SHADING
IC104
HT5625B
LUMA/CHROMA PROCESS
LOW LIGHT COMPE
RED PROCESS
BLU PROCESS
GRN PROCESS
LUMA PROCESS
R-YL MATRIX
B-YL MATRIX
YL MATRIX
GAMMA CONT
WHT. BAL. TRACKING
RED
BLU
GND
P.BLK 2
V.OBP
V.PB5V
VAG
RED SIGNAL
BLU SIGNAL
GRN SIGNAL
LUMA SIGNAL
To PROCESS (PRE PROCESS) 1H-13H
V.OBP
V.PB9V
V.PB5V
8.8MHz CLOCK
TP102
TP101
IC107
HT5542A
SYNC GENERATOR
VCO
B+
C.BLK
C.SYNC
CHD
CP1
BF
CP
8.8MHz
4.4MHz
SC 1
SC 2
B+ FILTER
WGP
VD/IDP
P.BLK 2
H.BF
CT101
Fo ADJ
CT102
VCO LOCK
C112 220/6.3
R129 39K
PG106
GND
WHT BAL.
BLU SIGNAL
RED SIGNAL
GRN SIGNAL
LUMA SIGNAL
V.OBP
ADJUSTMENT TERMINAL
PG102
V.OBP
CHD
C.SYNC
V.OBP
To SENSOR CN002
SC 2
SC 1
CP
R-Y MOD
B-Y MOD
MIX
SC2,CP
SC1,C
C.BLK
E
D
C
B
A
1
2
3
4

NOTE : MARK "■" IS DISCRETE COMPONENT.

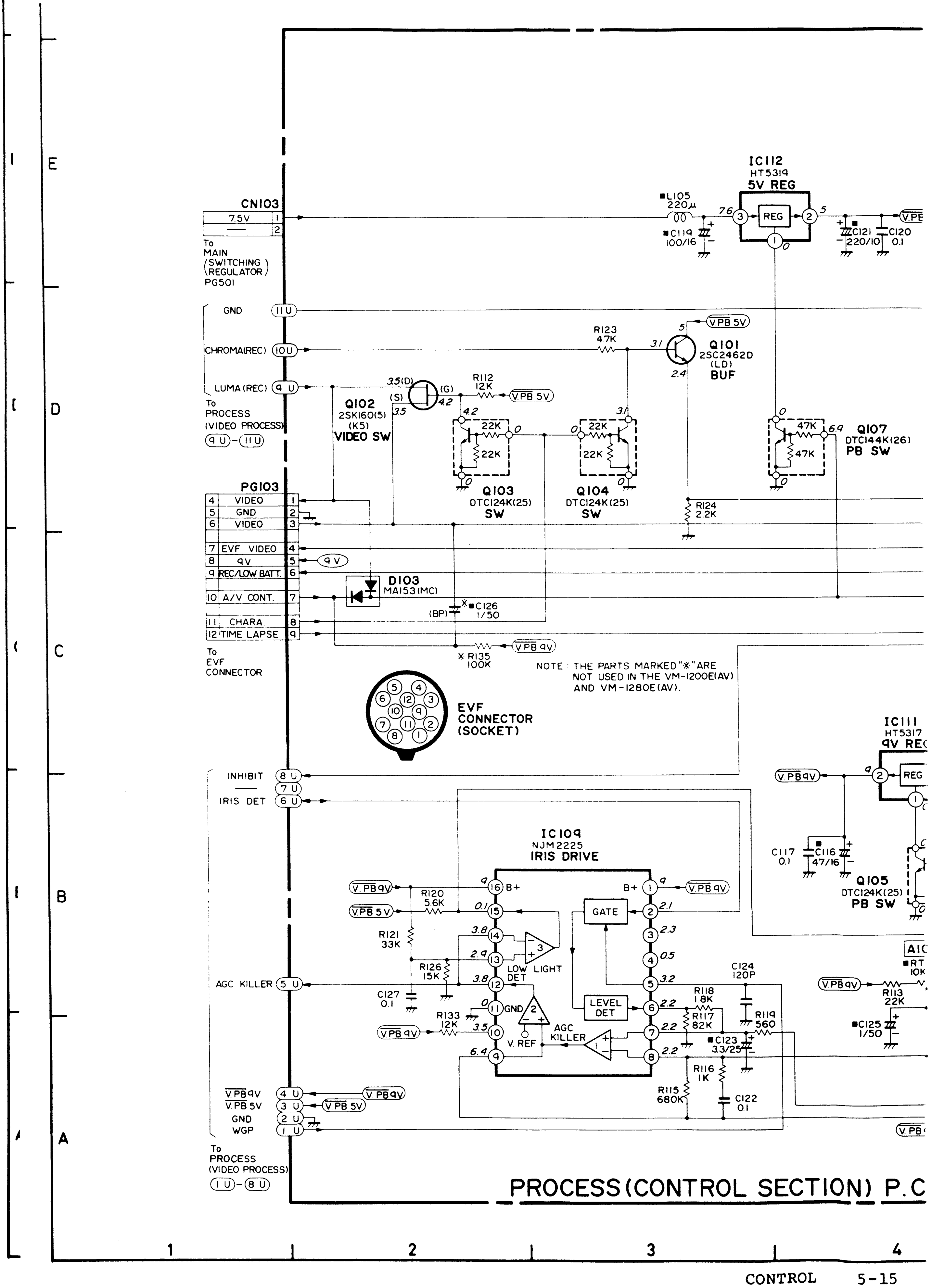

RM101-13
BURST LEVEL
H.BF
CP
L103 220μ
C111 22/6.3
V.PB5V
B+
CP, C BLK
CLAMP / GATE
C BLK
R-YL
B-YL
RM101-1
WHT. BAL.
NFB
IC106
HT5557B
AUTO WHITE BALANCE
SHADING CORRECT SIGNAL GEN
V.PB9V
CHROMA NOISE REDUCER
GND
SC
AGC
VREF
C110 10/6.3
R122 47K
V.PB 5V
CP101-5
4.43MHz TRAP
RTURE
RECT
IC108
HES8104
COLOR COMPE.
CP1, VREF
CP1
COLOR COMPE.
GND
CHROMA(REC)
LUMA(REC)
INHIBIT
IRIS DET
AGC KILLER
V.PB 9V
V.PB 5V
WGP
To PROCESS (CONTROL) 1U-11U
C.SYNC
INHIBIT
C113 22/6.3
4.43MHz BPF
GAIN CONT. / INHIBIT
CHROMA GAIN
LUMA PROCESS
RM101-2
CHROMA LEVEL
D101
MA151K (MH)
PROCESS (VIDEO PROCESS SECTION) P.C.B
5
6
7

WAVEFORM No.
GRN SIGNAL
RED SIGNAL
BLU SIGNAL
R-YL SIGNAL
B-YL SIGNAL
LUMA SIGNAL
CHROMA SIGNAL

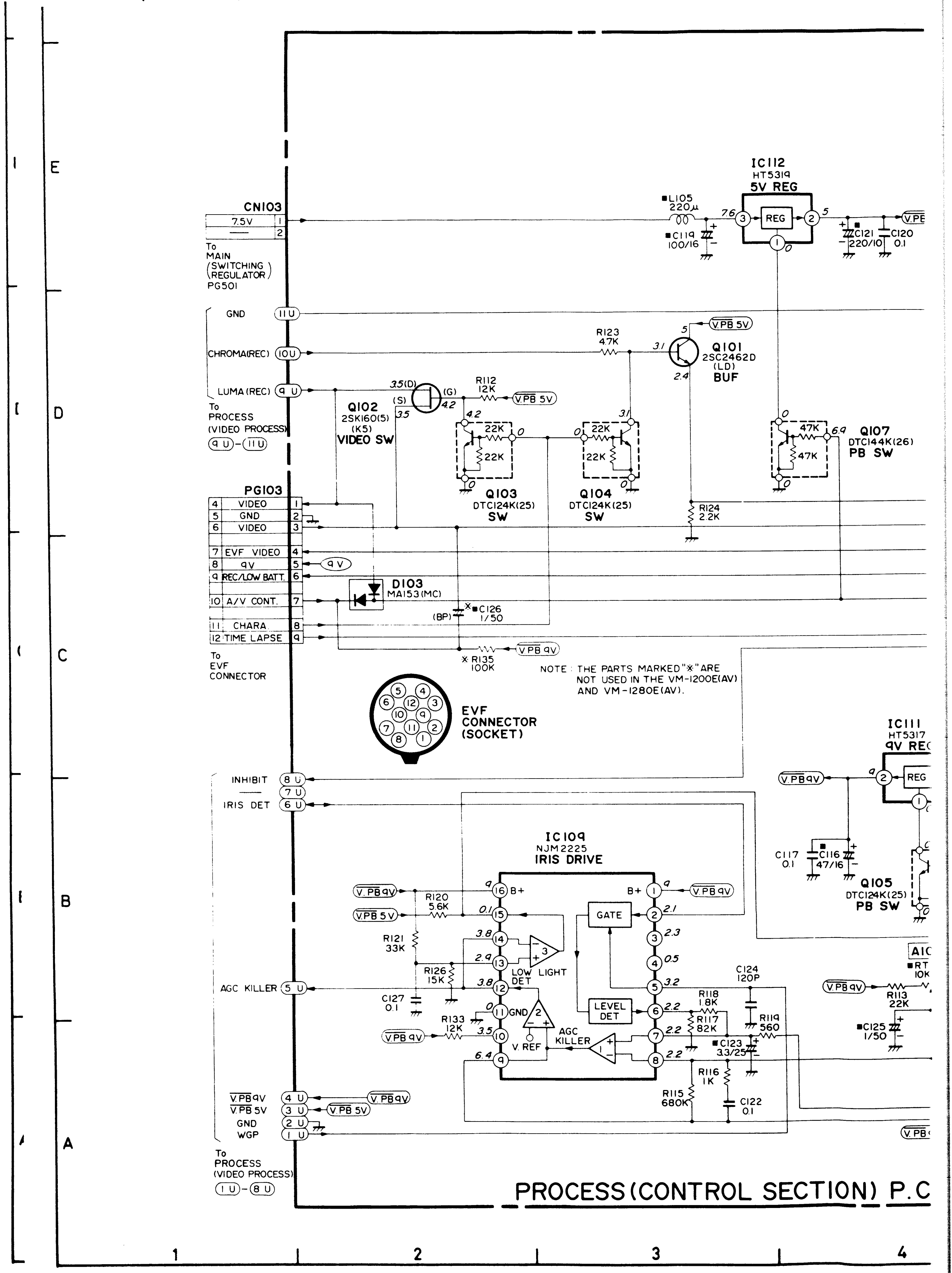
SCHEMATIC DIAGRAMS	PAGE	E
AUDIO	5-28	8
AUTO FOCUS	5-21	1
CONTROL	5-15	5
CHROMA	5-33	3
CYL.-/CAPST.-MOTORS DRIVE	5-27	7
ELECTRONIC VIEWFINDER	5-19	9
FUNCTION SW	5-25	5
FOCUS SENSOR	5-20	0
HEAD SW	5-30	0
INTERFACE	5-10	0
LUMINANCE	5-31	1
MIC JACK	5-22	2
PRE PROCESS	5-11	1
POWER SUPPLY	5-29	9
SENSOR	5-7	
SERVO	5-25	5
SYSTEM CONTROL	5-23	3
SWITCHING REGULATOR	5-25	5
TROUBLE SENSOR	5-29	9
TRACKING VR	5-34	4
VIDEO PROCESS	5-13	3

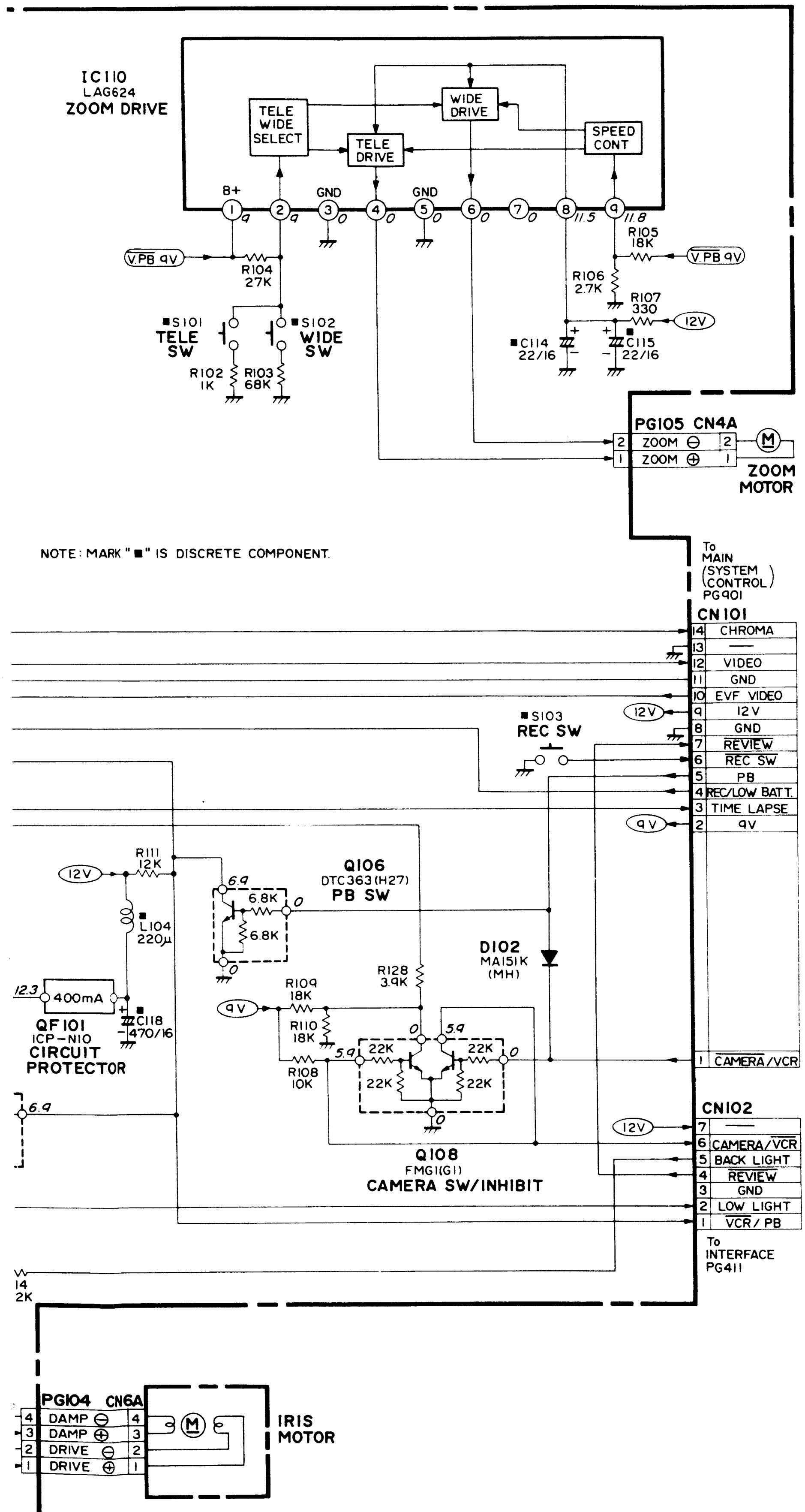
8

P PROCESS (CONTROL) SCHEMATIC DIAGRAM PROZESS (STEUERUNG)-SCHALTPLAN


E
D
C
B
A
1
2
3
4
CN103
7.5V
1
2
To MAIN (SWITCHING REGULATOR) PG501
GND
11 U
CHROMA(REC)
10 U
LUMA (REC)
9 U
To PROCESS (VIDEO PROCESS) 9 U - 11 U
■L105 220μ
■C119 100/16
7.6
IC112 HT5319 5V REG
REG
5
0
C121 220/10
C120 0.1
V.PB 5V
R123 4.7K
3.1
Q101 2SC2462D (LD) BUF
2.4
R112 12K
V.PB 5V
3.5(D)
(G)
(S)
4.2
3.5
Q102 2SK160(5) (K5) VIDEO SW
4.2
22K
22K
Q103 DTC124K(25) SW
22K
22K
Q104 DTC124K(25) SW
3.1
47K
47K
6.9
Q107 DTC144K(26) PB SW
R124 2.2K
PG103
4 VIDEO 1
5 GND 2
6 VIDEO 3
7 EVF VIDEO 4
8 9V 5
9 REC/LOW BATT. 6
10 A/V CONT. 7
11 CHARA 8
12 TIME LAPSE 9
9V
D103 MA153(MC)
×■C126 1/50
(BP)
× R135 100K
V.PB 9V
To EVF CONNECTOR
NOTE : THE PARTS MARKED "×" ARE NOT USED IN THE VM-1200E(AV) AND VM-1280E(AV).
EVF CONNECTOR (SOCKET)
IC111 HT5317 9V REG
V.PB 9V
REG
C117 0.1
■C116 47/16
Q105 DTC124K(25) PB SW
INHIBIT
8 U
7 U
IRIS DET
6 U
IC109 NJM2225 IRIS DRIVE
V.PB 9V
V.PB 5V
R120 5.6K
R121 33K
R126 15K
C127 0.1
R133 12K
V.PB 9V
B+
B+
GATE
LOW LIGHT DET
LEVEL DET
GND
V. REF
AGC KILLER
9
0.1
3.8
2.9
3.8
0
3.5
6.4
9
2.1
2.3
0.5
3.2
2.2
2.2
2.2
AGC KILLER
5 U
C124 120P
R118 1.8K
R117 82K
R119 560
■C123 33/25
R116 1K
R115 680K
C122 0.1
AIC
■RT 10K
R113 22K
■C125 1/50
V.PB 9V
V.PB9V
V.PB 5V
GND
WGP
4 U
3 U
2 U
1 U
V.PB 9V
V.PB 5V
To PROCESS (VIDEO PROCESS) 1 U - 8 U
PROCESS(CONTROL SECTION) P.C

PROCESS (CONTROL) SCHEMATIC DIAGRAM PROZESS (STEUERUNG)-SCHALTPLAN


E
D
C
B
A
1
2
3
4
CN103
7.5V
To MAIN (SWITCHING REGULATOR) PG501
GND
CHROMA(REC)
LUMA (REC)
To PROCESS (VIDEO PROCESS) 9U-11U
L105 220μ
C119 100/16
IC112 HT5319 5V REG
REG
C121 220/10
C120 0.1
R123 4.7K
V.PB 5V
Q101 2SC2462D (LD) BUF
R112 12K
Q102 2SK160(5) (K5) VIDEO SW
22K
Q103 DTC124K(25) SW
Q104 DTC124K(25) SW
R124 2.2K
47K
Q107 DTC144K(26) PB SW
PG103
VIDEO
GND
EVF VIDEO
9V
REC/LOW BATT.
A/V CONT.
CHARA
TIME LAPSE
To EVF CONNECTOR
D103 MA153(MC)
C126 1/50
(BP)
R135 100K
V.PB 9V
NOTE: THE PARTS MARKED "※" ARE NOT USED IN THE VM-1200E(AV) AND VM-1280E(AV).
EVF CONNECTOR (SOCKET)
IC111 HT5317 9V REG
C117 0.1
C116 47/16
Q105 DTC124K(25) PB SW
INHIBIT
IRIS DET
IC109 NJM2225 IRIS DRIVE
B+
GATE
LOW LIGHT DET
LEVEL DET
AGC KILLER
V. REF
GND
R120 5.6K
R121 33K
R126 15K
C127 0.1
R133 12K
AGC KILLER
C124 120P
R118 1.8K
R117 82K
R119 560
C123 3.3/25
R116 1K
R115 680K
C122 0.1
RT 10K
R113 22K
C125 1/50
V.PB 9V
V.PB 5V
GND
WGP
To PROCESS (VIDEO PROCESS) 1U-8U
PROCESS(CONTROL SECTION) P.C


IC110
LAG624
ZOOM DRIVE
TELE WIDE SELECT
TELE DRIVE
WIDE DRIVE
SPEED CONT
B+
GND
GND
VPB 9V
R104 27K
R105 18K
V.PB 9V
R106 2.7K
R107 330
12V
■S101 TELE SW
■S102 WIDE SW
R102 1K
R103 68K
■C114 22/16
■C115 22/16
PG105 CN4A
ZOOM ⊖
ZOOM ⊕
ZOOM MOTOR
To MAIN (SYSTEM CONTROL) PG901
CN101
14 CHROMA
13 —
12 VIDEO
11 GND
10 EVF VIDEO
9 12V
8 GND
7 REVIEW
6 REC SW
5 PB
4 REC/LOW BATT.
3 TIME LAPSE
2 9V
1 CAMERA/VCR
■S103 REC SW
R111 12K
L104 220µ
Q106 DTC363(H27) PB SW
6.8K
6.8K
D102 MA151K (MH)
R128 3.9K
R109 18K
R110 18K
R108 10K
22K
22K
22K
22K
Q108 FMG1(G1) CAMERA SW/INHIBIT
QF101 ICP-N10 CIRCUIT PROTECTOR
400mA
■C118 470/16
CN102
7 —
6 CAMERA/VCR
5 BACK LIGHT
4 REVIEW
3 GND
2 LOW LIGHT
1 VCR/PB
To INTERFACE PG411
14 2K
PG104 CN6A
4 DAMP ⊖
3 DAMP ⊕
2 DRIVE ⊖
1 DRIVE ⊕
IRIS MOTOR

NOTE: MARK "■" IS DISCRETE COMPONENT.

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AUDIO	5-28
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CYL.-/CAPST.-MOTORS DRIVE	5-27
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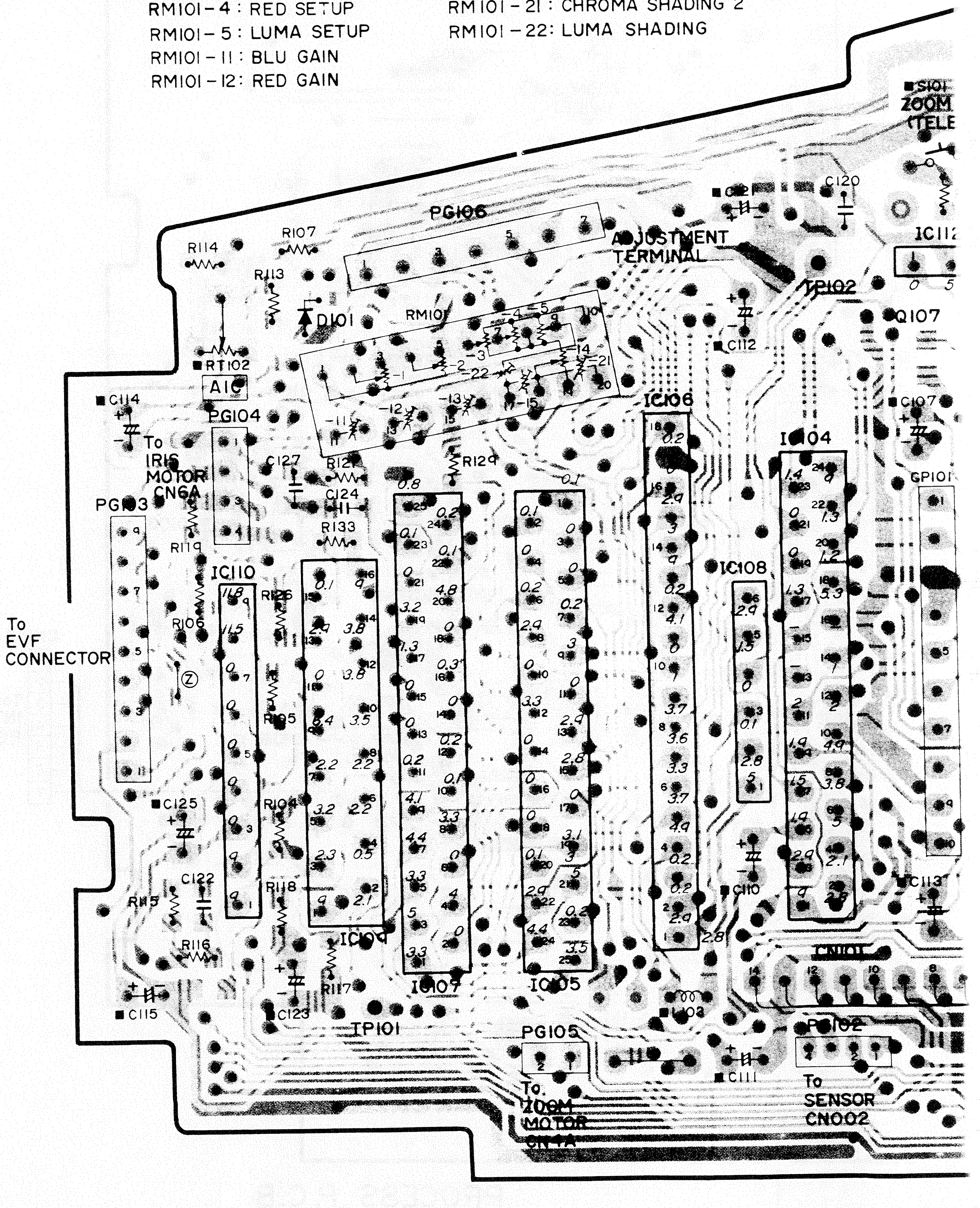
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

PROCESS CIRCUIT BOARD　PROZESS-LEITERPLATTE

RM101 - 1 : WHT BAL
RM101 - 2 : CHROMA LEVEL
RM101 - 3 : BLU SETUP
RM101 - 4 : RED SETUP
RM101 - 5 : LUMA SETUP
RM101 - 11 : BLU GAIN
RM101 - 12 : RED GAIN
RM101 - 13 : BURST LEVEL
RM101 - 14 : GRN SETUP
RM101 - 15 : CHROMA SHADING 1
RM101 - 21 : CHROMA SHADING 2
RM101 - 22 : LUMA SHADING

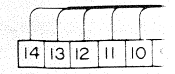

■S101
ZOOM
(TELE
■C121
C120
PG106
R114
R107
R113
ADJUSTMENT
TERMINAL
IC112
TP102
D101
RM101
Q107
■C112
■RT102
AIC
■C114
PG104
IC106
■C107
IC104
To
IRIS
MOTOR
CN6A
C127
R127
R129
PG103
C124
GP101
R133
R119
IC110
IC108
R126
To
EVF
CONNECTOR
R106
Ⓩ
R105
■C125
R104
C122
R118
C110
■C113
R115
IC109
R116
CN101
R117
IC107
IC105
■C115
C123
TP101
L103
PG105
PG102
■C111
To
ZOOM
MOTOR
CN4A
To
SENSOR
CN002

: Solderd side

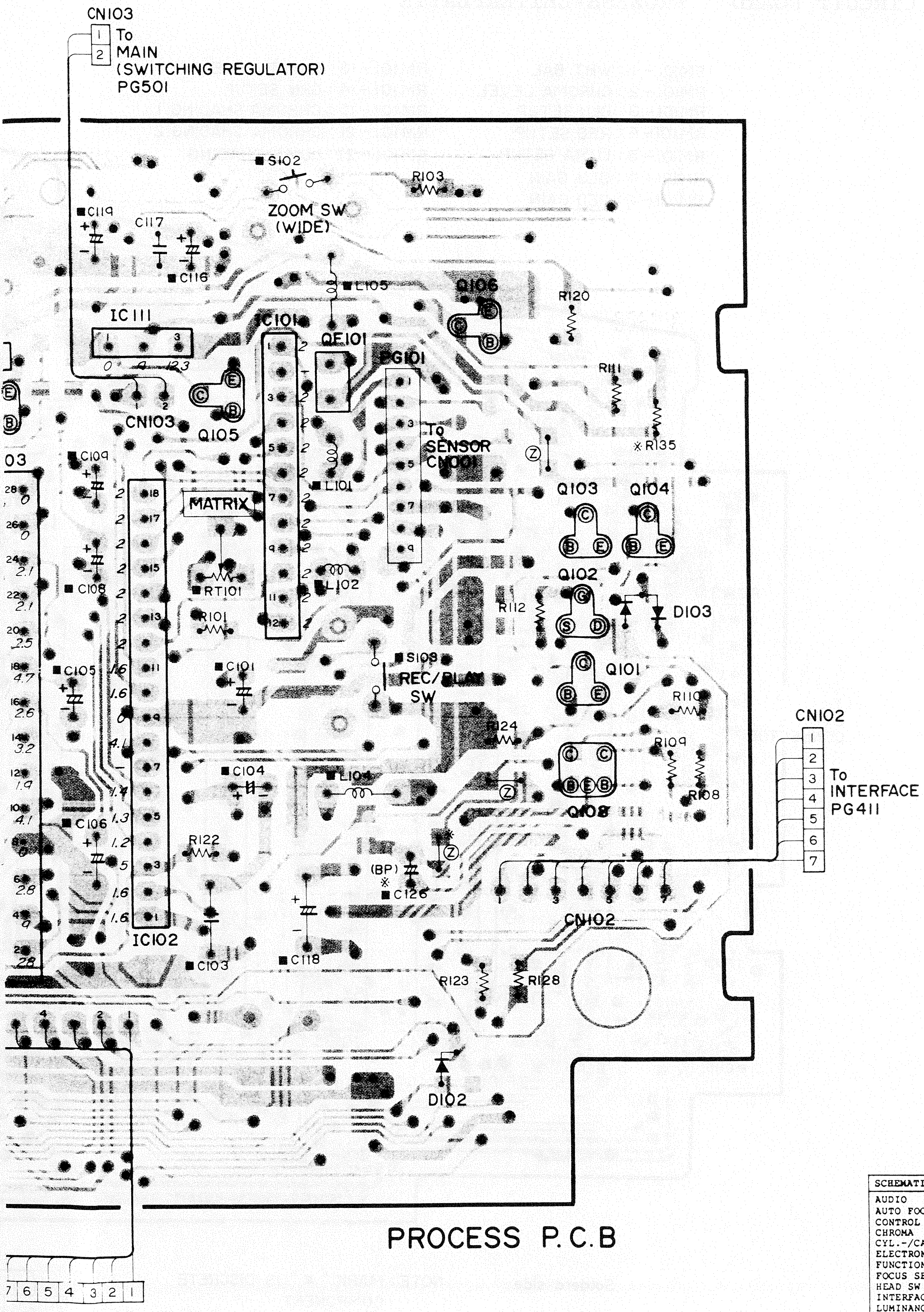
: Parts side

● : Through hole

NOTE : MARK " ■ " IS DISCRETE COMPONENT.
MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.
THE PARTS MARKED "※" ARE NOT USED IN THE VM-1200E (AV) AND VM-1280E (AV).


14
13
12
11
10

To
MAIN
(SYSTE
PG901


CN103
1
2
To
MAIN
(SWITCHING REGULATOR)
PG501
S102
ZOOM SW
(WIDE)
R103
C119
C117
C116
L105
Q106
R120
IC111
IC101
QF101
PG101
CN103
Q105
To
SENSOR
CN001
R111
R135
03
C109
MATRIX
L101
Q103
Q104
RT101
L102
Q102
R112
D103
R101
C108
C105
C101
S103
REC/PLAY
SW
Q101
R110
R124
CN102
C104
L104
R109
R108
Q108
To
INTERFACE
PG411
C106
R122
(BP)
C126
C103
C118
CN102
IC102
R123
R128
D102
NTROL)
7 6 5 4 3 2 1

PROCESS P.C.B

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HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
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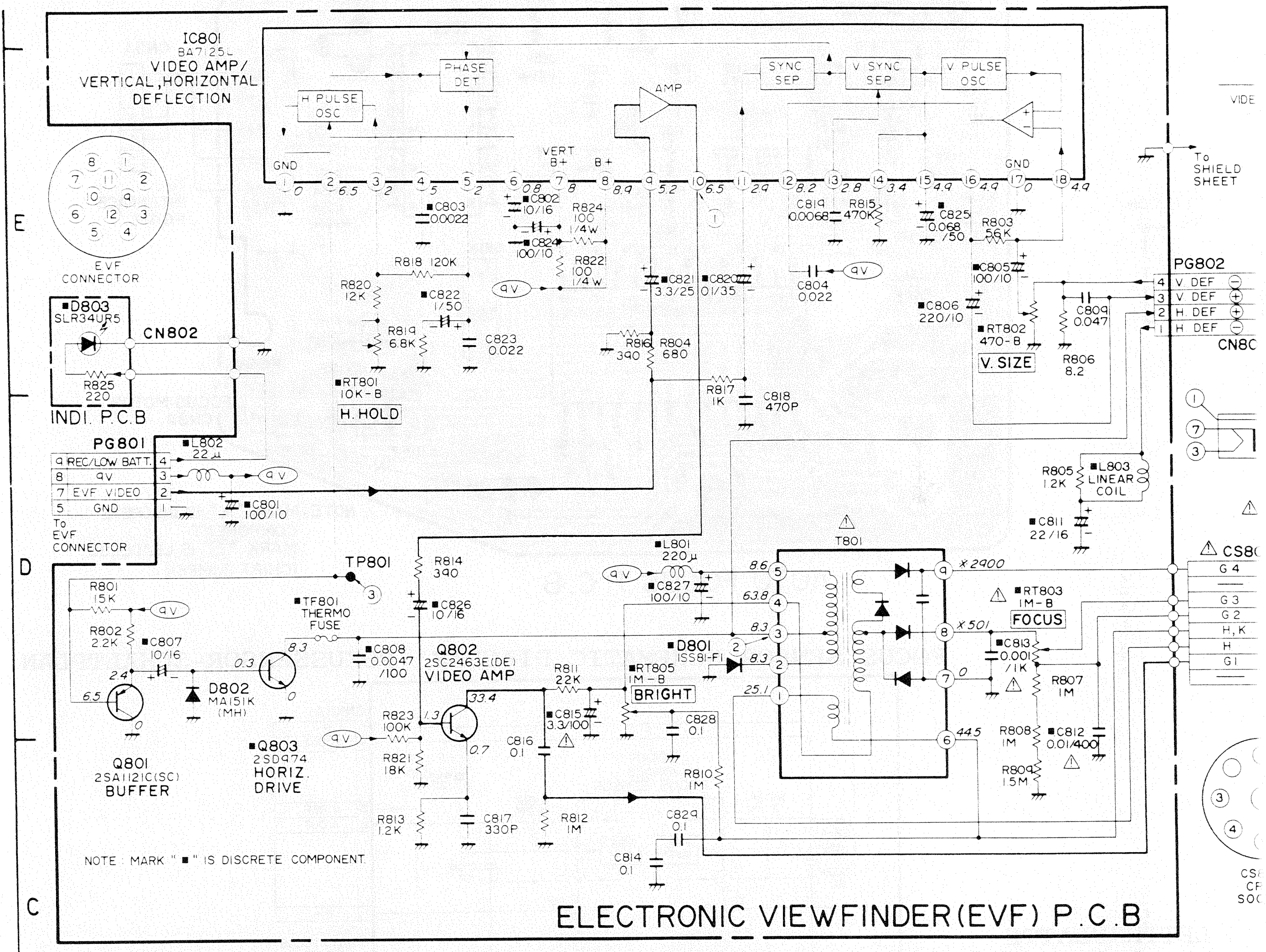
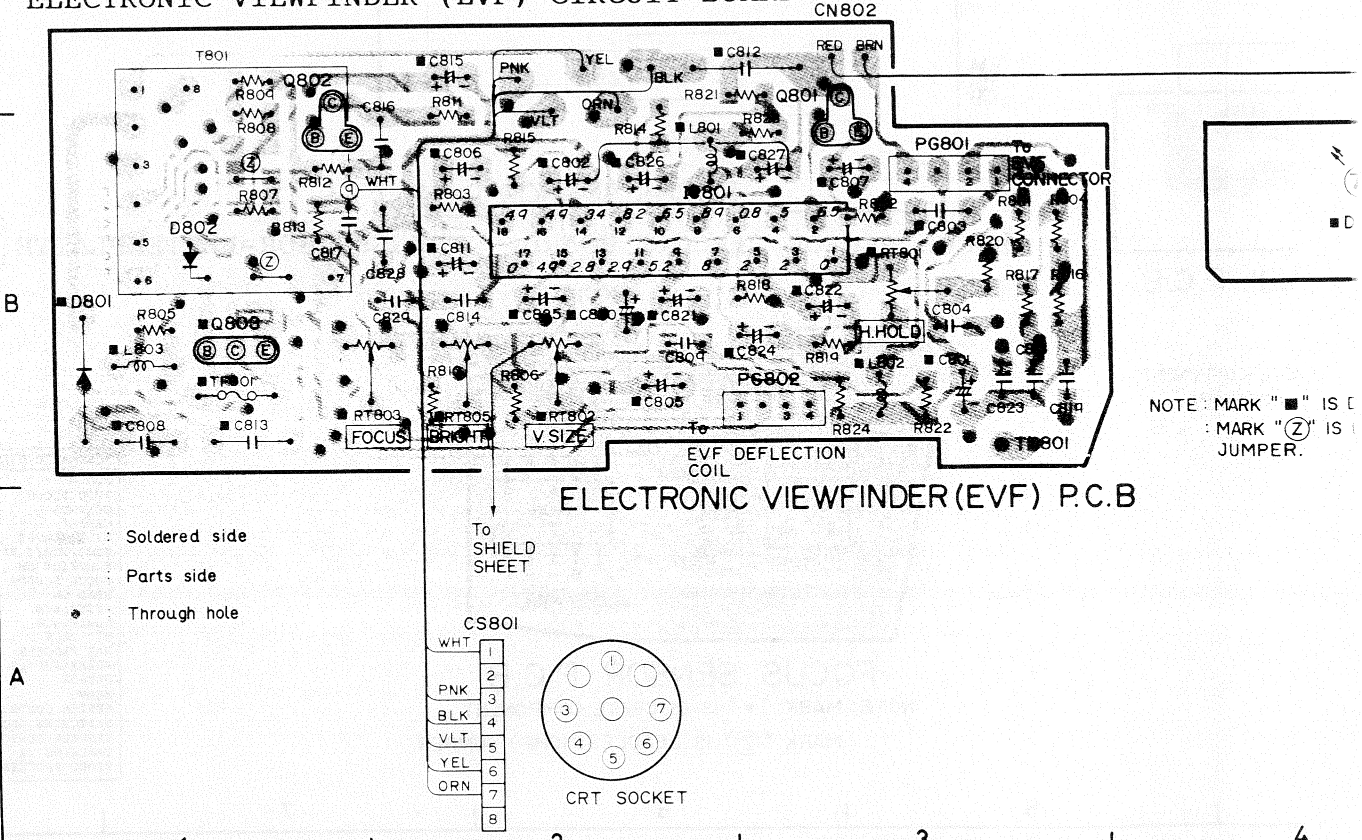
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM
ELEKTRONISCHER SUCHER - SCHALTPLAN

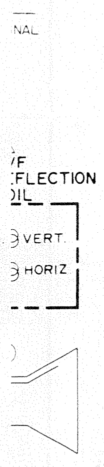

IC801
BA7125L
VIDEO AMP/
VERTICAL,HORIZONTAL
DEFLECTION
H PULSE OSC
PHASE DET
AMP
SYNC SEP
V SYNC SEP
V PULSE OSC
GND
VERT B+
B+
To SHIELD SHEET
EVF CONNECTOR
■D803
SLR34UR5
CN802
R825 220
INDI. P.C.B
PG801
9 REC/LOW BATT.
8 9V
7 EVF VIDEO
5 GND
To EVF CONNECTOR
■L802 22µ
■C801 100/10
■C803 0.0022
■C802 10/16
R824 100 1/4W
■C824 100/10
R822 100 1/4W
R818 120K
R820 12K
■C822 1/50
R819 6.8K
C823 0.022
■RT801 10K-B
H. HOLD
■C821 3.3/25
■C820 0.1/35
R816 390
R804 680
C819 0.0068
R815 470K
C804 0.022
■C825 0.068 /50
R803 56K
■C805 100/10
■C806 220/10
■RT802 470-B
V. SIZE
C809 0.047
R806 8.2
R817 1K
C818 470P
PG802
4 V. DEF
3 V. DEF
2 H. DEF
1 H. DEF
CN80
R805 1.2K
■L803 LINEAR COIL
■C811 22/16
T801
■L801 220µ
■C827 100/10
■D801 ISS81-F1
■RT805 1M-B
BRIGHT
C828 0.1
■RT803 1M-B
FOCUS
■C813 0.001 /1K
R807 1M
R808 1M
■C812 0.01/400
R809 1.5M
R810 1M
C829 0.1
C814 0.1
CS80
G4
G3
G2
H,K
H
G1
TP801
R814 390
R801 15K
R802 2.2K
■C807 10/16
■TF801 THERMO FUSE
■C826 10/16
■C808 0.0047 /100
Q802 2SC2463E(DE) VIDEO AMP
R811 22K
■C815 3.3/100
C816 0.1
D802 MA151K (MH)
Q801 2SA1121C(SC) BUFFER
■Q803 2SD974 HORIZ. DRIVE
R823 100K
R821 18K
R813 1.2K
C817 330P
R812 1M
9V
×2900
×501
NOTE : MARK "■" IS DISCRETE COMPONENT.
ELECTRONIC VIEWFINDER(EVF) P.C.B

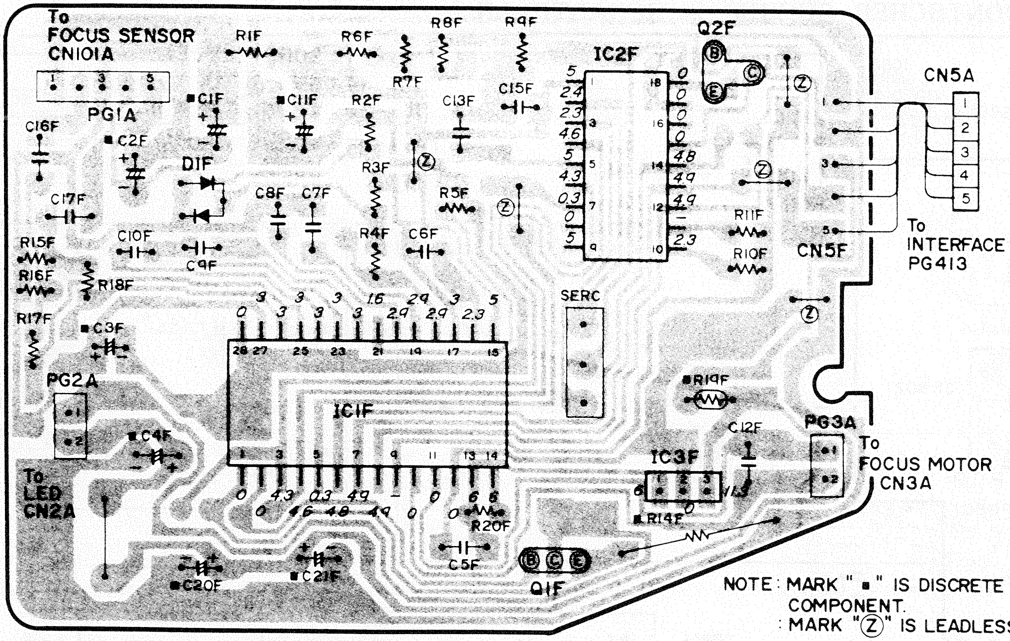
ELECTRONIC VIEWFINDER (EVF) CIRCUIT BOARD

ELECTRONISCHER SUCHER


CN802
RED
BRN
T801
Q802
■C815
PNK
YEL
BLK
■C812
R809
R808
C816
R811
VLT
ORN
R821
Q801
R814
■L801
C827
PG801
To EVF CONNECTOR
■C806
R815
C802
C826
R812
WHT
R803
R807
IC801
■C807
R813
C817
D802
■C811
C828
R818
■RT801
R820
R817
R816
■D801
R805
■Q803
■L803
C829
C814
■C825
■C820
■C821
C809
■C824
R819
H.HOLD
■C822
C804
■L802
■C801
R810
R806
PG802
■C805
R824
R822
C823
C819
■TF801
■C808
■C813
■RT803
FOCUS
■RT805
BRIGHT
■RT802
V.SIZE
To EVF DEFLECTION COIL
TP801
ELECTRONIC VIEWFINDER(EVF) P.C.B
To SHIELD SHEET
CS801
CRT SOCKET
: Soldered side
: Parts side
: Through hole
NOTE : MARK "■" IS
: MARK "Z" IS
JUMPER.

AUTO FOCUS CIRCUIT BOARD AUTOFOKUS-LEITERPLATTE

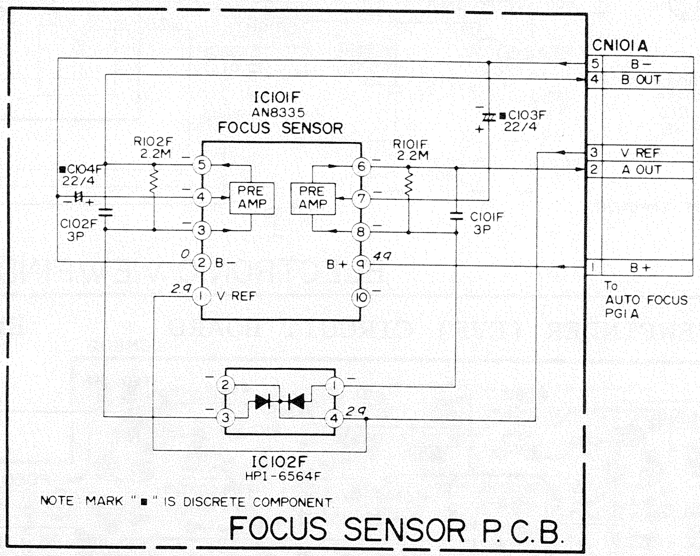

NAL
F
FLECTION
OIL
VERT.
HORIZ


To
FOCUS SENSOR
CN101A
R1F
R6F
R8F
R9F
R7F
Q2F
IC2F
CN5A
1
2
3
4
5
PG1A
C1F
C11F
R2F
C13F
C15F
C16F
C2F
D1F
R3F
C17F
C8F
C7F
R5F
R15F
C10F
C9F
R4F
C6F
R16F
R18F
R11F
R10F
CN5F
To
INTERFACE
PG413
R17F
C3F
SERC
IC1F
PG2A
R19F
C12F
PG3A
To
FOCUS MOTOR
CN3A
IC3F
To
LED
CN2A
C4F
R14F
R20F
C5F
Q1F
C20F
C21F

NOTE: MARK "■" IS DISCRETE COMPONENT.
: MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.

AUTO FOCUS P.C.B

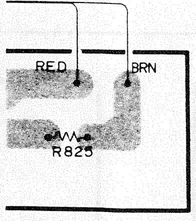
FOCUS SENSOR SCHEMATIC DIAGRAM FOKUSSENSOR-SCHALTPLAN


CN101A
5 B−
4 B OUT
3 V REF
2 A OUT
1 B+
To
AUTO FOCUS
PG1A
IC101F
AN8335
FOCUS SENSOR
C103F
22/4
R102F
2.2M
R101F
2.2M
C104F
22/4
C102F
3P
C101F
3P
PRE AMP
PRE AMP
B−
B+
V REF
IC102F
HPI-6564F

NOTE MARK "■" IS DISCRETE COMPONENT.

FOCUS SENSOR P.C.B.

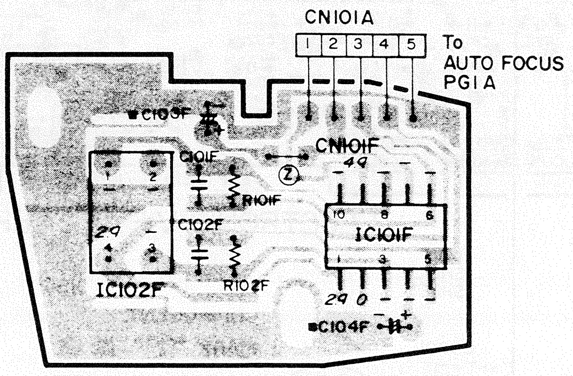
LEITERPLATTE


RED
BRN
R825

NDI. P.C.B

ETE COMPONENT.
LESS (CHIP)

FOCUS SENSOR CIRCUIT BOARD FOKUSSENSOR-LEITERPLATTE


CN101A
1
2
3
4
5
To
AUTO FOCUS
PG1A
C103F
C101F
R101F
CN101F
IC101F
IC102F
C102F
R102F
C104F

FOCUS SENSOR P.C.B
NOTE: MARK "■" IS DISCRETE COMPONENT.
: MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.

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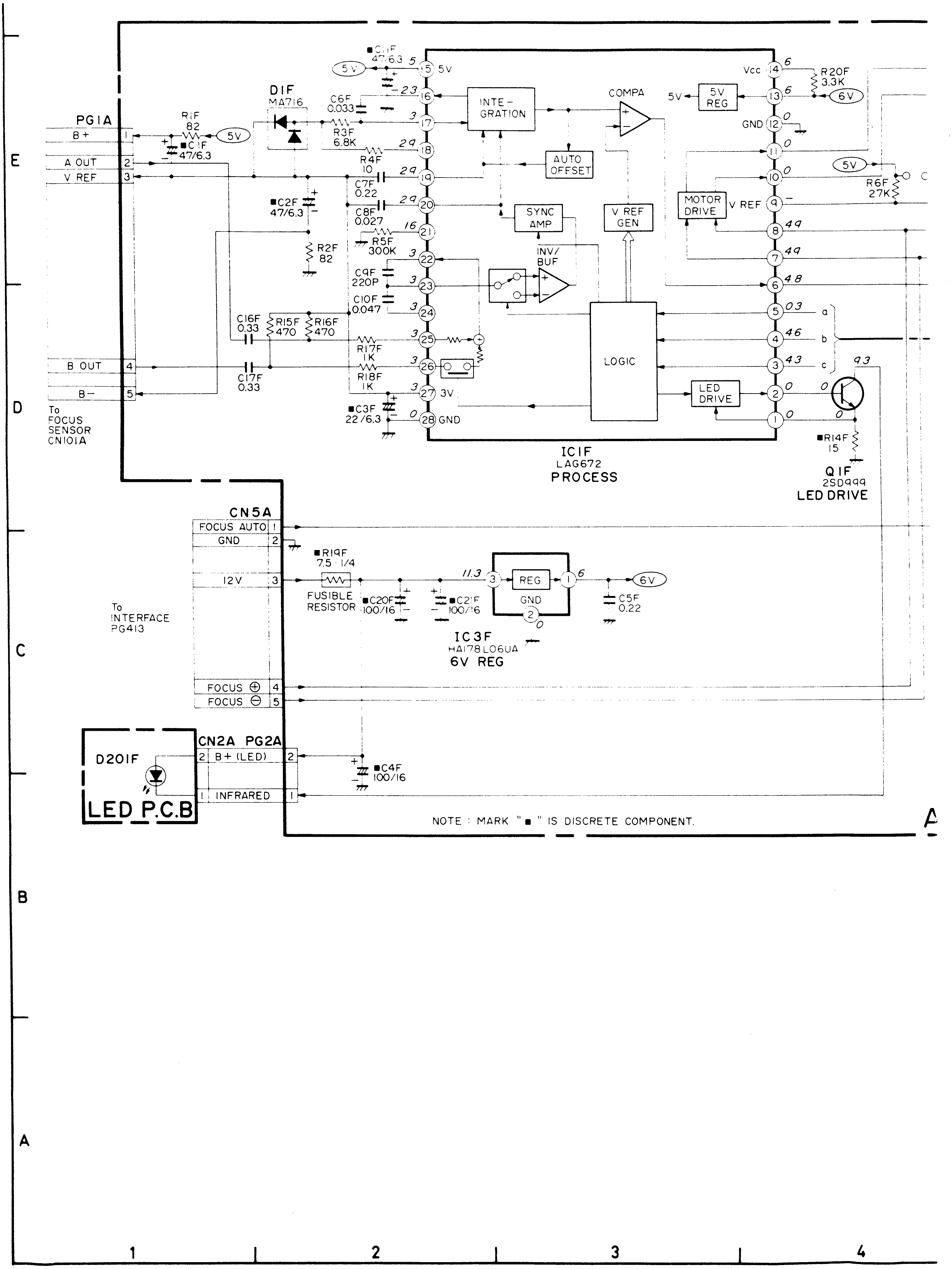
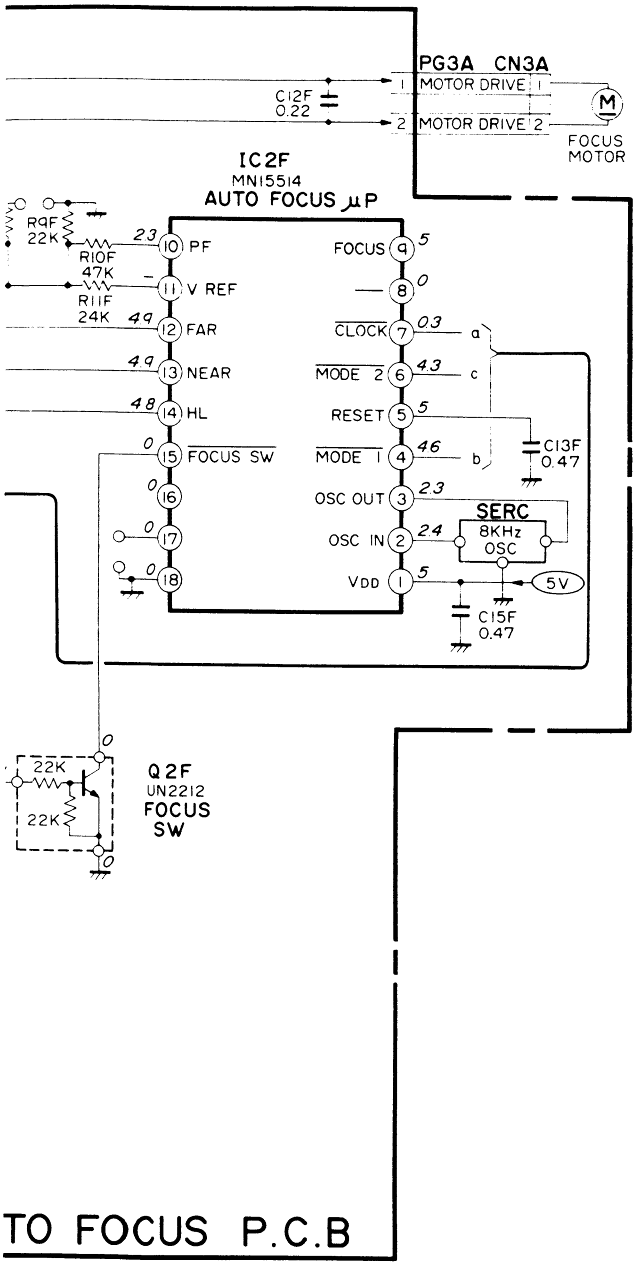
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

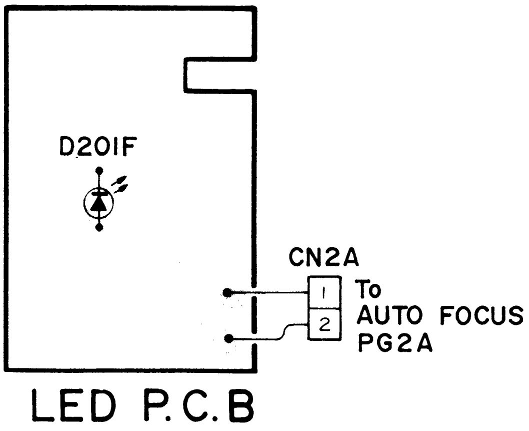
AUTO FOCUS SCHEMATIC DIAGRAM AUTOFOKUS-SCHALTPLAN


PG1A
B+
A OUT
V REF
B OUT
B−
To FOCUS SENSOR CN101A
R1F 82
5V
■C1F 47/6.3
D1F MA716
C6F 0.033
R3F 6.8K
R4F 10
C7F 0.22
C8F 0.027
■C2F 47/6.3
R2F 82
R5F 300K
C9F 220P
C10F 0.047
C16F 0.33
R15F 470
R16F 470
R17F 1K
R18F 1K
C17F 0.33
■C3F 22/6.3
■C11F 47/6.3
5V
3V
GND
INTE-GRATION
COMPA
AUTO OFFSET
SYNC AMP
INV/BUF
V REF GEN
LOGIC
LED DRIVE
MOTOR DRIVE
V REF
5V REG
Vcc
GND
R20F 3.3K
6V
R6F 27K
a
b
c
IC1F LAG672 PROCESS
Q1F 2SD999 LED DRIVE
■R14F 15
CN5A
FOCUS AUTO
GND
12V
FOCUS ⊕
FOCUS ⊖
To INTERFACE PG413
■R19F 7.5 1/4
FUSIBLE RESISTOR
■C20F 100/16
■C21F 100/16
REG
IC3F HA178L06UA 6V REG
C5F 0.22
D201F
LED P.C.B
CN2A PG2A
B+ (LED)
INFRARED
■C4F 100/16
E
D
C
B
A
1
2
3
4

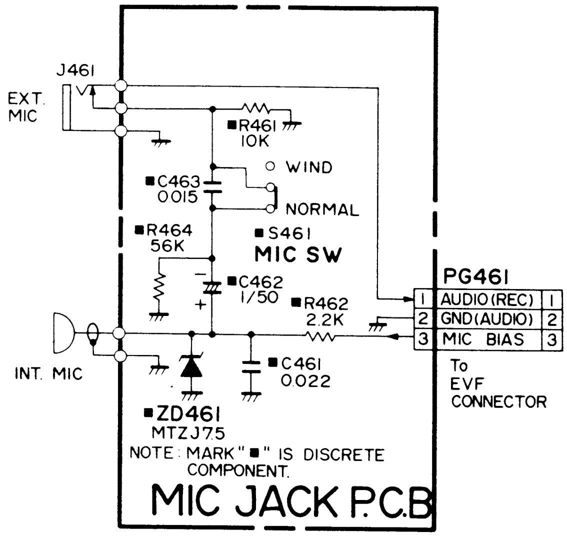
NOTE : MARK "■" IS DISCRETE COMPONENT.


PG3A CN3A
1 MOTOR DRIVE 1
2 MOTOR DRIVE 2
C12F 0.22
M
FOCUS MOTOR
IC2F
MN15514
AUTO FOCUS µP
R9F 22K
R10F 47K
R11F 24K
23 (10) PF
(11) V REF
49 (12) FAR
49 (13) NEAR
48 (14) HL
0 (15) FOCUS SW
0 (16)
0 (17)
0 (18)
FOCUS (9) 5
(8) 0
CLOCK (7) 03
MODE 2 (6) 43
RESET (5) 5
MODE 1 (4) 46
OSC OUT (3) 23
OSC IN (2) 24
VDD (1) 5
a
c
b
C13F 0.47
SERC
8KHz OSC
5V
C15F 0.47
Q2F
UN2212
FOCUS SW
22K
22K
0
0
TO FOCUS P.C.B

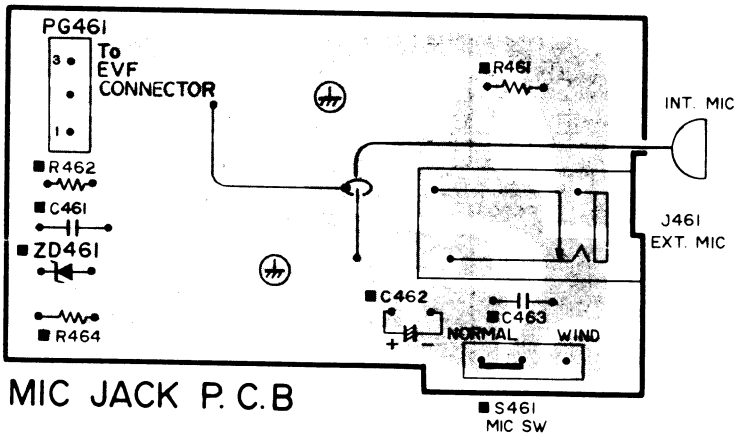
LED CIRCUIT BOARD LED-LEITERPLATTE


D201F
CN2A
1
2
To AUTO FOCUS PG2A
LED P.C.B

MIC JACK SCHEMATIC DIAGRAM
MIKROFONBUCHSE-SCHALTPLAN


J461
EXT. MIC
■R461 10K
■C463 0.015
○ WIND
NORMAL
■S461 MIC SW
■R464 56K
■C462 1/50
■R462 2.2K
PG461
1 AUDIO(REC) 1
2 GND(AUDIO) 2
3 MIC BIAS 3
To EVF CONNECTOR
INT. MIC
■C461 0.022
■ZD461 MTZJ7.5
NOTE: MARK "■" IS DISCRETE COMPONENT.
MIC JACK P.C.B

MIC JACK CIRCUIT BOARD
MIKROFONBUCHSE-LEITERPLATTE


PG461
3
1
To EVF CONNECTOR
■R461
INT. MIC
■R462
■C461
■ZD461
J461 EXT. MIC
■C462
■C463
NORMAL
WIND
■R464
MIC JACK P.C.B
■S461 MIC SW

NOTE: MARK "■" IS DISCRETE COMPONENT.

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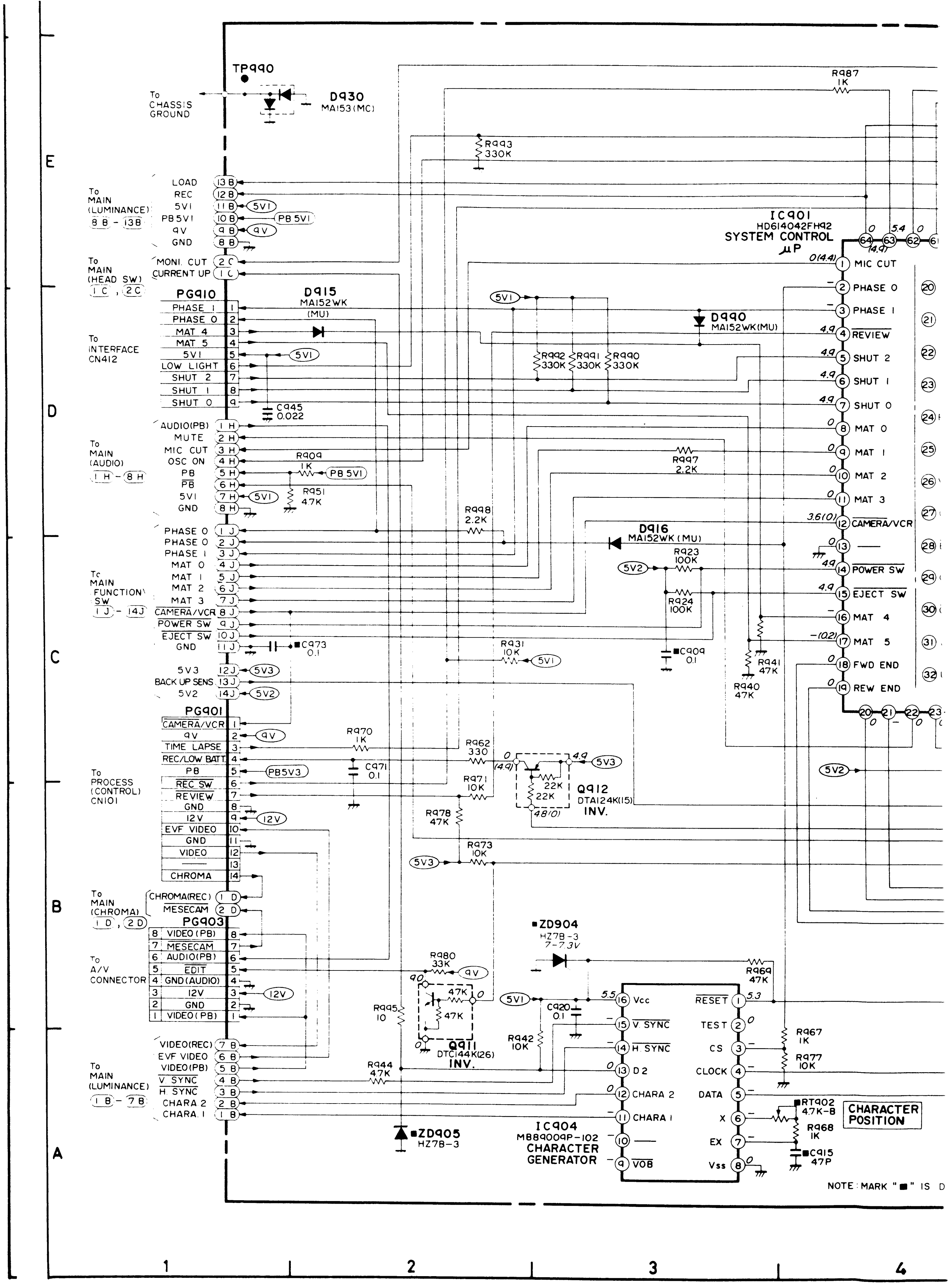
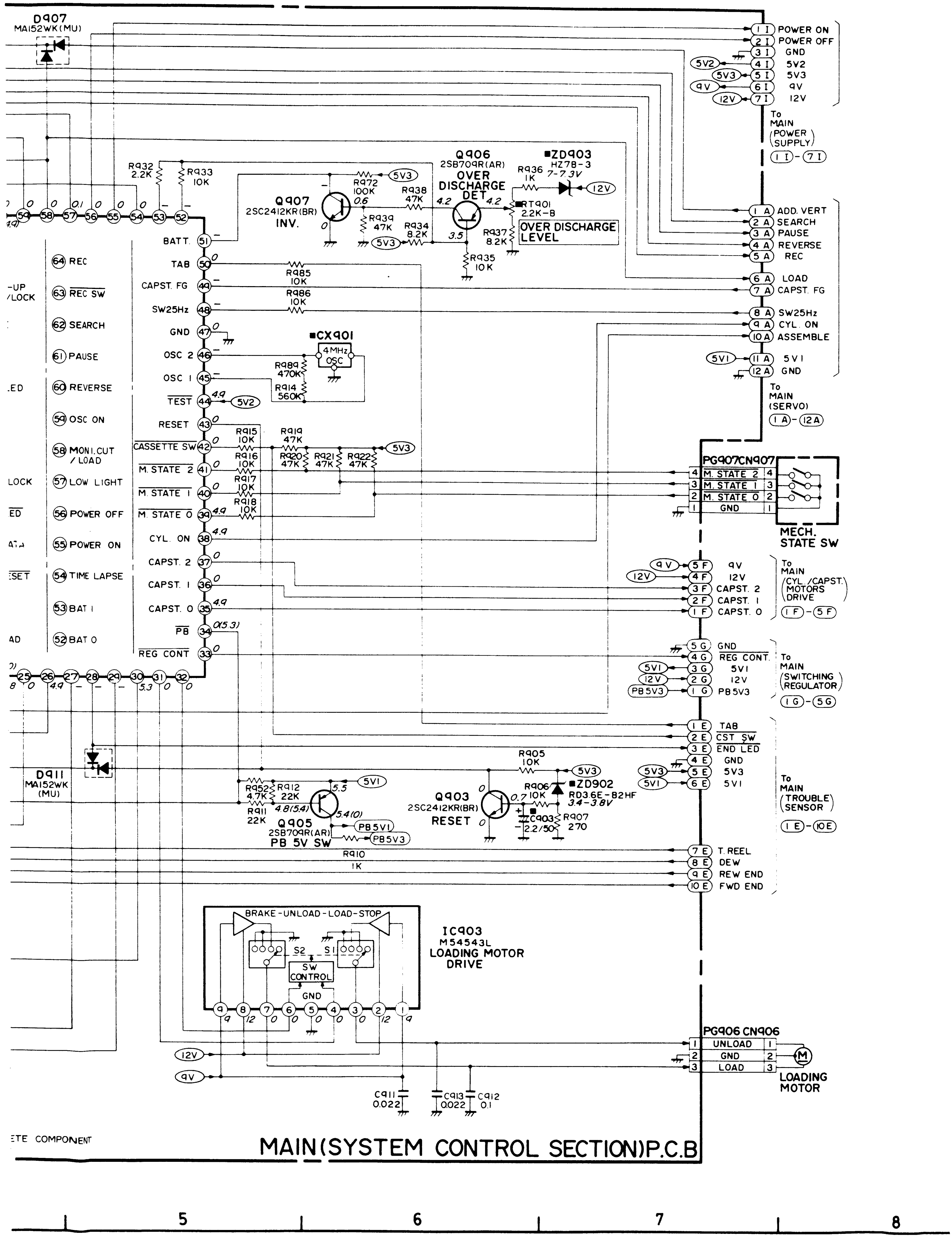
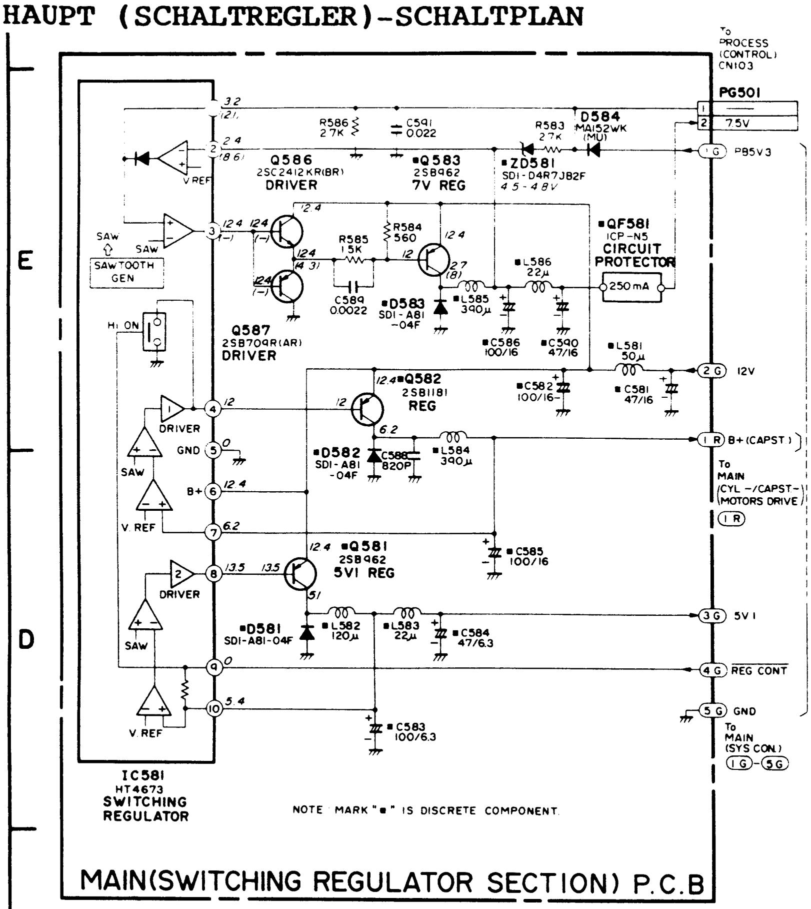
CYL.-/CAPST.-MOTORS DRIVE	5-27	SERVO	5-25
ELECTRONIC VIEWFINDER	5-19	SYSTEM CONTROL	5-23
FUNCTION SW	5-25	SWITCHING REGULATOR	5-25
FOCUS SENSOR	5-20	TROUBLE SENSOR	5-29
HEAD SW	5-30	TRACKING VR	5-34
INTERFACE	5-10	VIDEO PROCESS	5-13
LUMINANCE	5-31		

MAIN (SYSTEM CONTROL) SCHEMATIC DIAGRAM   HAUPT (SYSTEMREGELUNG)-SCHALTPI

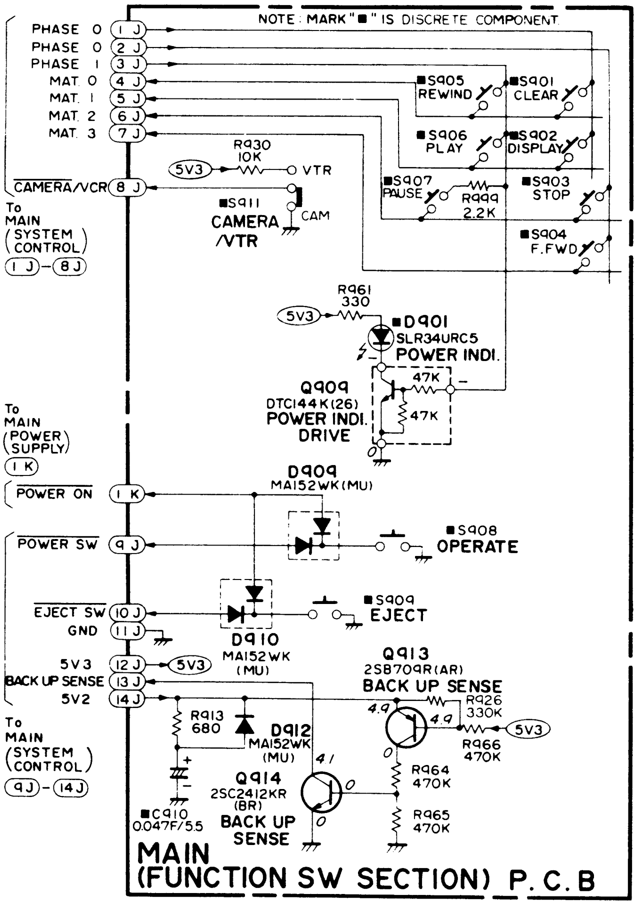

E
D
C
B
A
1
2
3
4
TP990
To CHASSIS GROUND
D930 MA153(MC)
R993 330K
R987 1K
To MAIN (LUMINANCE) 8B - 13B
LOAD 13B
REC 12B
5V1 11B
PB5V1 10B
9V 9B
GND 8B
To MAIN (HEAD SW) 1C, 2C
MONI. CUT 2C
CURRENT UP 1C
PG910
To INTERFACE CN412
PHASE 1 1
PHASE 0 2
MAT 4 3
MAT 5 4
5V1 5
LOW LIGHT 6
SHUT 2 7
SHUT 1 8
SHUT 0 9
D915 MA152WK (MU)
C945 0.022
R992 330K
R991 330K
R990 330K
D990 MA152WK(MU)
IC901 HD614042FH92 SYSTEM CONTROL µP
1 MIC CUT
2 PHASE 0
3 PHASE 1
4 REVIEW
5 SHUT 2
6 SHUT 1
7 SHUT 0
8 MAT 0
9 MAT 1
10 MAT 2
11 MAT 3
12 CAMERA/VCR
13 —
14 POWER SW
15 EJECT SW
16 MAT 4
17 MAT 5
18 FWD END
19 REW END
20 21 22 23
64 63 62
0 5.4 0 (4.9)
0(4.4) 4.9 4.9 4.9 4.9 0 0 0 0 3.6(0) 0 4.9 4.9 -(0.2) 0 0
To MAIN (AUDIO) 1H - 8H
AUDIO(PB) 1H
MUTE 2H
MIC CUT 3H
OSC ON 4H
PB 5H
PB 6H
5V1 7H
GND 8H
R909 1K
R951 4.7K
R997 2.2K
R998 2.2K
To MAIN FUNCTION SW 1J - 14J
PHASE 0 1J
PHASE 0 2J
PHASE 1 3J
MAT 0 4J
MAT 1 5J
MAT 2 6J
MAT 3 7J
CAMERA/VCR 8J
POWER SW 9J
EJECT SW 10J
GND 11J
5V3 12J
BACK UP SENS 13J
5V2 14J
C973 0.1
D916 MA152WK (MU)
R923 100K
R924 100K
C909 0.1
R931 10K
R941 47K
R940 47K
5V2
PG901
To PROCESS (CONTROL) CN101
CAMERA/VCR 1
9V 2
TIME LAPSE 3
REC/LOW BATT 4
PB 5
REC SW 6
REVIEW 7
GND 8
12V 9
EVF VIDEO 10
GND 11
VIDEO 12
— 13
CHROMA 14
PB5V3
R970 1K
C971 0.1
R962 330
R971 10K
R978 47K
R973 10K
5V3
Q912 DTA124K(15) INV.
22K 22K
0 (4.9) 4.9 4.8(0)
To MAIN (CHROMA) 1D, 2D
CHROMA(REC) 1D
MESECAM 2D
PG903
To A/V CONNECTOR
8 VIDEO (PB) 8
7 MESECAM 7
6 AUDIO(PB) 6
5 EDIT 5
4 GND (AUDIO) 4
3 12V 3
2 GND 2
1 VIDEO (PB) 1
■ZD904 HZ7B-3 7-7.3V
R980 33K
Q911 DTC144K(26) INV.
47K 47K
9.0 0 0
R995 10
R944 47K
■ZD905 HZ7B-3
To MAIN (LUMINANCE) 1B - 7B
VIDEO(REC) 7B
EVF VIDEO 6B
VIDEO(PB) 5B
V SYNC 4B
H SYNC 3B
CHARA 2 2B
CHARA 1 1B
C920 0.1
R942 10K
R969 47K
IC904 M88900P-102 CHARACTER GENERATOR
16 Vcc
15 V SYNC
14 H SYNC
13 D2
12 CHARA 2
11 CHARA 1
10 —
9 VOB
1 RESET
2 TEST
3 CS
4 CLOCK
5 DATA
6 X
7 EX
8 Vss
5.5 5.3 0 0 0
R967 1K
R977 10K
■RT902 4.7K-B
R968 1K
■C915 47P
CHARACTER POSITION
⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜
NOTE: MARK "■" IS D


D907
MA152WK(MU)
R932 2.2K
R933 10K
Q907
2SC2412KR(BR)
INV.
R972 100K
5V3
R939 47K
R938 47K
R934 8.2K
Q906
2SB709R(AR)
OVER DISCHARGE DET
R935 10K
R937 8.2K
R936 1K
■ZD903
HZ7B-3
7-7.3V
12V
■RT901
2.2K-B
OVER DISCHARGE LEVEL
BATT. 51
TAB 50
CAPST. FG 49
SW25Hz 48
GND 47
OSC 2 46
OSC 1 45
TEST 44
RESET 43
CASSETTE SW 42
M. STATE 2 41
M. STATE 1 40
M. STATE 0 39
CYL. ON 38
CAPST. 2 37
CAPST. 1 36
CAPST. 0 35
PB 34
REG CONT 33
64 REC
63 REC SW
62 SEARCH
61 PAUSE
60 REVERSE
59 OSC ON
58 MONI.CUT / LOAD
57 LOW LIGHT
56 POWER OFF
55 POWER ON
54 TIME LAPSE
53 BAT 1
52 BAT 0
-UP /LOCK
.ED
LOCK
ED
ESET
AD
R985 10K
R986 10K
■CX901
4MHz OSC
R989 470K
R914 560K
5V2
R915 10K
R916 10K
R917 10K
R918 10K
R919 47K
R920 47K
R921 47K
R922 47K
1I POWER ON
2I POWER OFF
3I GND
4I 5V2
5I 5V3
6I 9V
7I 12V
To MAIN (POWER SUPPLY) 1I-7I
1A ADD. VERT
2A SEARCH
3A PAUSE
4A REVERSE
5A REC
6A LOAD
7A CAPST. FG
8A SW25Hz
9A CYL. ON
10A ASSEMBLE
11A 5V1
12A GND
To MAIN (SERVO) 1A-12A
PG907 CN907
4 M. STATE 2 4
3 M. STATE 1 3
2 M. STATE 0 2
1 GND 1
MECH. STATE SW
5F 9V
4F 12V
3F CAPST. 2
2F CAPST. 1
1F CAPST. 0
To MAIN (CYL./CAPST. MOTORS DRIVE) 1F-5F
5G GND
4G REG CONT.
3G 5V1
2G 12V
1G PB5V3
To MAIN (SWITCHING REGULATOR) 1G-5G
1E TAB
2E CST SW
3E END LED
4E GND
5E 5V3
6E 5V1
7E T. REEL
8E DEW
9E REW END
10E FWD END
To MAIN (TROUBLE SENSOR) 1E-10E
D911
MA152WK (MU)
R952 4.7K
R912 22K
R911 22K
5V1
Q905
2SB709R(AR)
PB 5V SW
PB5V1
PB5V3
R910 1K
R905 10K
Q903
2SC2412KR(BR)
RESET
R906 10K
■ZD902
RD3.6E-B2HF
3.4-3.8V
■C903 2.2/50
R907 270
BRAKE-UNLOAD-LOAD-STOP
S2
S1
SW CONTROL
GND
IC903
M54543L
LOADING MOTOR DRIVE
12V
9V
C911 0.022
C913 0.022
C912 0.1
PG906 CN906
1 UNLOAD 1
2 GND 2
3 LOAD 3
M
LOADING MOTOR
ETE COMPONENT
MAIN(SYSTEM CONTROL SECTION)P.C.B
5
6
7
8

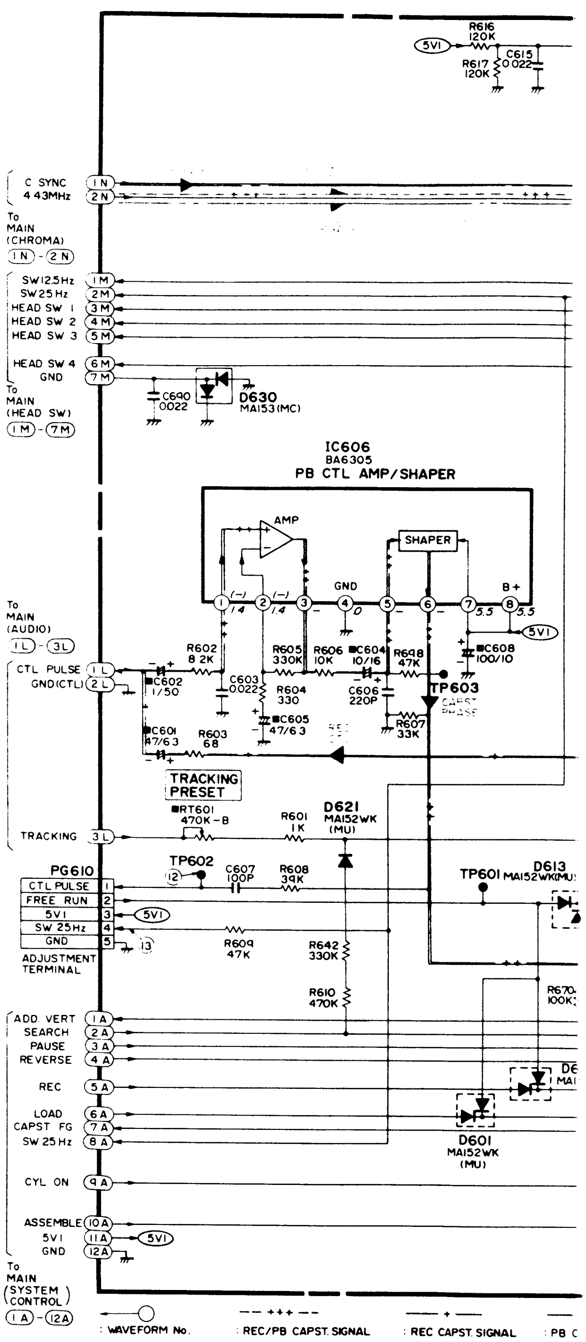
MAIN (SWITCHING REGULATOR) SCHEMATIC DIAGRAM
HAUPT (SCHALTREGLER)-SCHALTPLAN

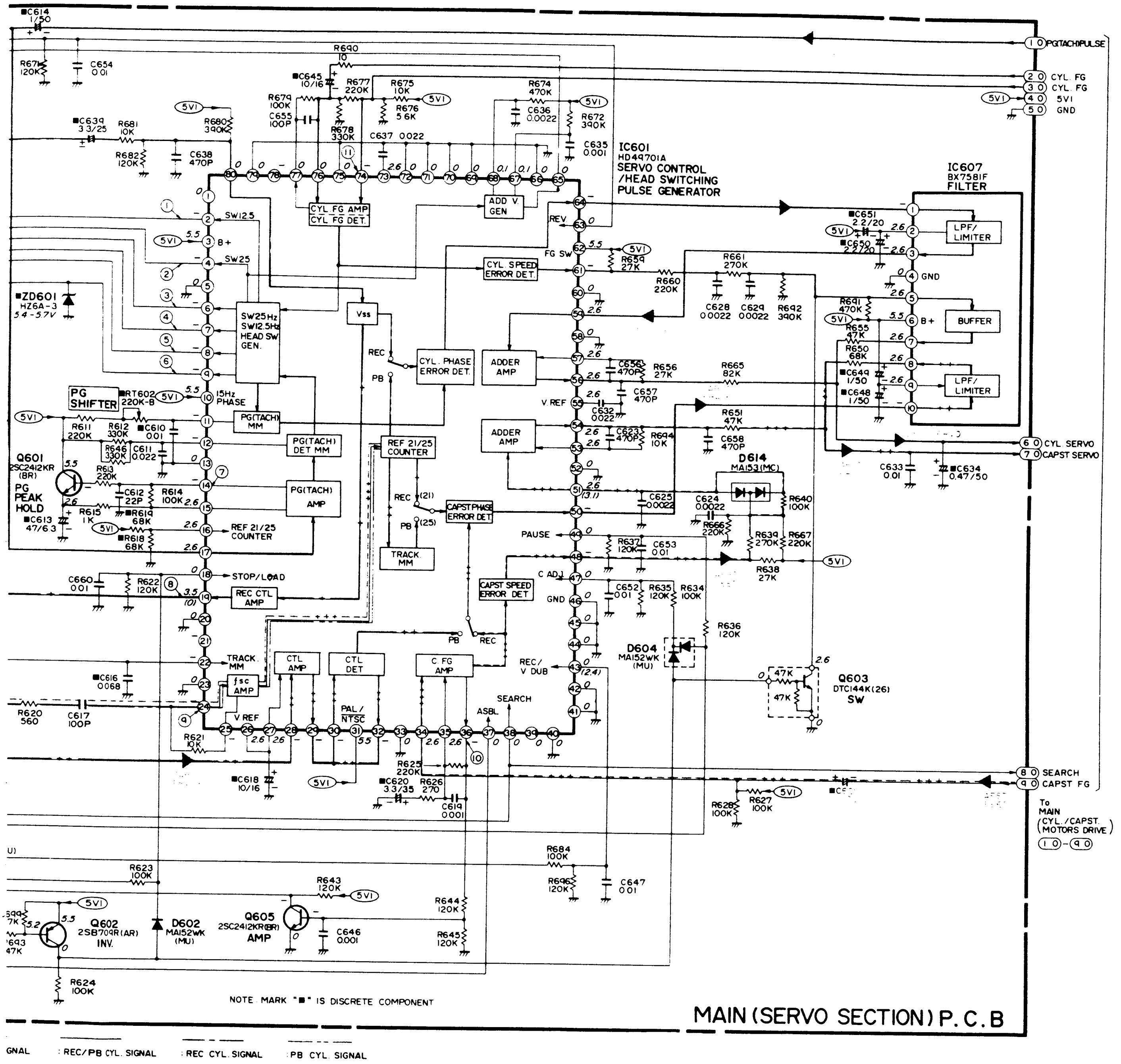

To PROCESS (CONTROL) CN103
PG501
7.5V
PB5V3
D584 MA152WK (MU)
R583 2.7K
R586 27K
C591 0.022
Q586 2SC2412KR(BR) DRIVER
■Q583 2SB962 7V REG
■ZD581 SD1-D4R7J82F
R584 560
R585 1.5K
C589 0.0022
■D583 SD1-A81-04F
■L585 390µ
■L586 22µ
■QF581 ICP-N5 CIRCUIT PROTECTOR
250mA
■C586 100/16
■C590 47/16
■L581 50µ
12V
Q587 2SB709R(AR) DRIVER
■Q582 2SB1181 REG
■C582 100/16
■C581 47/16
■D582 SD1-A81-04F
C588 820P
■L584 390µ
B+(CAPST)
To MAIN (CYL -/CAPST-) MOTORS DRIVE
■Q581 2SB962 5V1 REG
■C585 100/16
■D581 SD1-A81-04F
■L582 120µ
■L583 22µ
■C584 47/6.3
5V1
REG CONT
GND
To MAIN (SYS CON) 1G-5G
■C583 100/6.3
SAW
SAWTOOTH GEN
H: ON
DRIVER
V REF
GND
B+
IC581 HT4673 SWITCHING REGULATOR
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN(SWITCHING REGULATOR SECTION) P.C.B

MAIN (FUNCTION SW) SCHEMATIC DIAGRAM
HAUPT (FUNKTIONSSCHALTER)-SCHALTPLAN


NOTE: MARK "■" IS DISCRETE COMPONENT.
PHASE 0
PHASE 0
PHASE 1
MAT. 0
MAT. 1
MAT. 2
MAT. 3
CAMERA/VCR
To MAIN (SYSTEM CONTROL) 1J-8J
■S905 REWIND
■S901 CLEAR
■S906 PLAY
■S902 DISPLAY
R930 10K
5V3
VTR
■S911 CAMERA /VTR
CAM
■S907 PAUSE
R999 2.2K
■S903 STOP
■S904 F.FWD
R961 330
■D901 SLR34URC5 POWER INDI.
Q909 DTC144K(26) POWER INDI. DRIVE
47K
47K
To MAIN (POWER SUPPLY) 1K
POWER ON
D909 MA152WK(MU)
POWER SW
■S908 OPERATE
EJECT SW
GND
■S909 EJECT
D910 MA152WK (MU)
5V3
BACK UP SENSE
5V2
To MAIN (SYSTEM CONTROL) 9J-14J
Q913 2SB709R(AR) BACK UP SENSE
R926 330K
R966 470K
R913 680
D912 MA152WK (MU)
Q914 2SC2412KR (BR) BACK UP SENSE
R964 470K
R965 470K
■C910 0.047F/5.5
MAIN (FUNCTION SW SECTION) P.C.B

MAIN (SERVO) SCHEMATIC D


R616 120K
5V1
R617 120K
C615 0.022
C SYNC 4.43MHz
To MAIN (CHROMA) 1N-2N
SW12.5Hz
SW25Hz
HEAD SW 1
HEAD SW 2
HEAD SW 3
HEAD SW 4
GND
To MAIN (HEAD SW) 1M-7M
C690 0.022
D630 MA153(MC)
IC606 BA6305 PB CTL AMP/SHAPER
AMP
SHAPER
GND
B+
To MAIN (AUDIO) 1L-3L
CTL PULSE
GND(CTL)
R602 8.2K
■C602 1/50
C603 0.022
R605 330K
R606 10K
■C604 10/16
R698 47K
■C608 100/10
R604 330
C606 220P
TP603 CAPST PHASE
■C605 47/6.3
R607 33K
■C601 47/6.3
R603 68
TRACKING PRESET
■RT601 470K-B
R601 1K
D621 MA152WK (MU)
TRACKING
PG610
CTL PULSE
FREE RUN
5V1
SW 25Hz
GND
ADJUSTMENT TERMINAL
TP602
C607 100P
R608 39K
R609 47K
R642 330K
R610 470K
TP601
D613 MA152WK(MU)
ADD VERT
SEARCH
PAUSE
REVERSE
REC
LOAD
CAPST FG
SW 25Hz
CYL ON
ASSEMBLE
5V1
GND
To MAIN (SYSTEM CONTROL) 1A-12A
R670 100K
D601 MA152WK (MU)
: WAVEFORM No.
: REC/PB CAPST. SIGNAL
: REC CAPST. SIGNAL
: PB C


IC601
HD49701A
SERVO CONTROL
/HEAD SWITCHING
PULSE GENERATOR
IC607
BX7581F
FILTER
CYL FG AMP
CYL FG DET.
ADD V. GEN
CYL. SPEED ERROR DET.
SW25Hz
SW12.5Hz
HEAD SW GEN.
Vss
CYL. PHASE ERROR DET.
ADDER AMP
REF 21/25 COUNTER
PG(TACH) MM
PG(TACH) DET MM
PG(TACH) AMP
CAPST PHASE ERROR DET
TRACK MM
CAPST SPEED ERROR DET
REC CTL AMP
CTL AMP
CTL DET
C FG AMP
fsc AMP
LPF/ LIMITER
BUFFER
PG SHIFTER
ZD601 HZ6A-3
Q601 2SC2412KR (BR) PG PEAK HOLD
Q602 2SB709R(AR) INV.
D602 MA152WK (MU)
Q605 2SC2412KR(BR) AMP
D614 MA153(MC)
D604 MA152WK (MU)
Q603 DTC144K(26) SW
STOP/LOAD
TRACK. MM
PAUSE
C ADJ
GND
REC/ V DUB
SEARCH
ASBL
PAL/ NTSC
V REF
FG SW
REV
REC
PB
1 PG(TACH)PULSE
2 CYL. FG
3 CYL. FG
4 5VI
5 GND
6 CYL. SERVO
7 CAPST SERVO
8 SEARCH
9 CAPST FG
To MAIN (CYL./CAPST. MOTORS DRIVE) 1-9
NOTE MARK "■" IS DISCRETE COMPONENT
MAIN (SERVO SECTION) P.C.B
GNAL
: REC/PB CYL. SIGNAL
: REC CYL. SIGNAL
: PB CYL. SIGNAL

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FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
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SWITCHING REGULATOR	5-25
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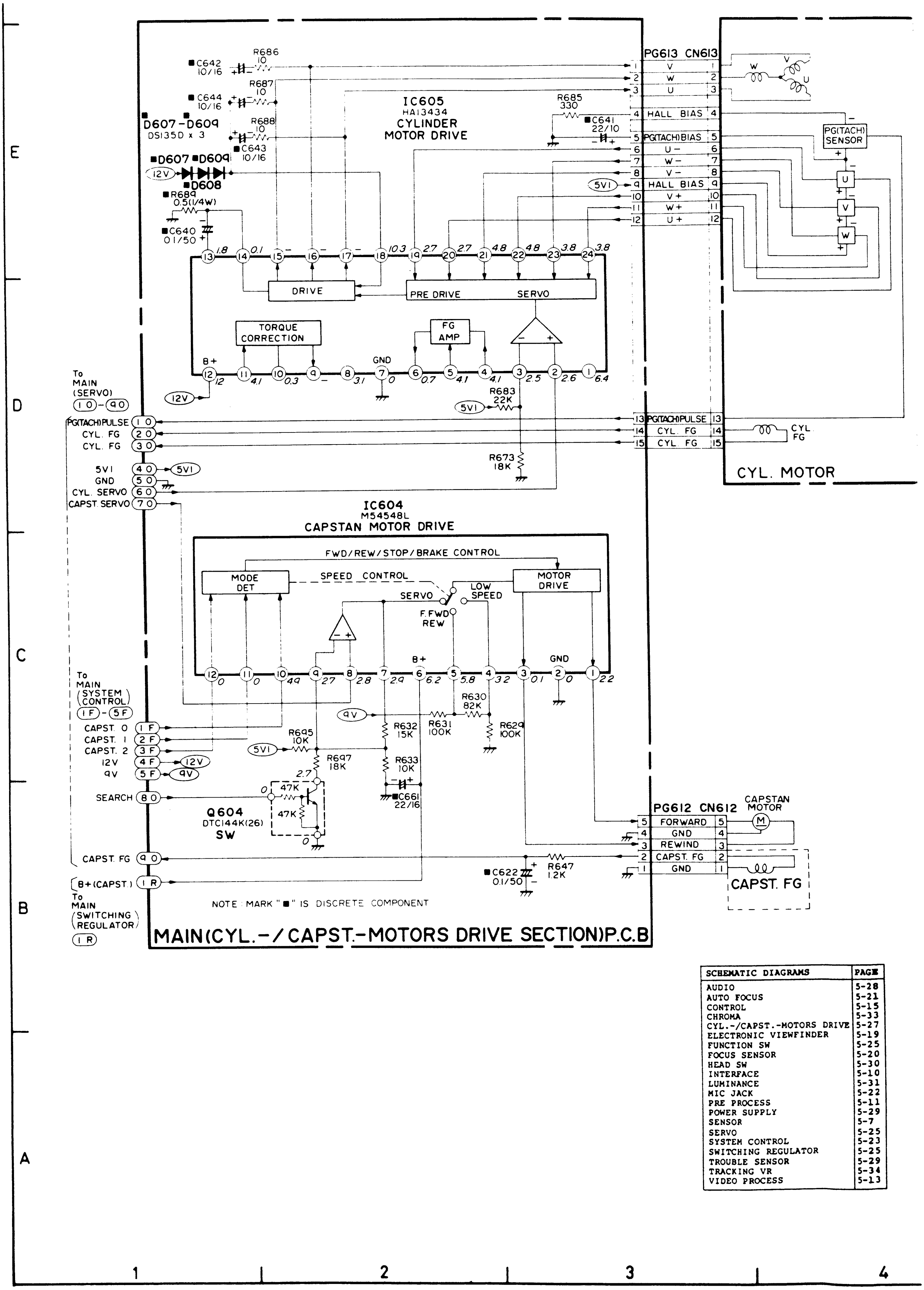
MAIN (CYL.-/CAPST.-MOTORS DRIVE) SCHEMATIC DIAGRAM
HAUPT (KOPFTROMMEL/CAPSTANMOTOR-TREIBERKREIS)-SCHALTPLAN


E
D
C
B
A
1
2
3
4
IC605
HA13434
CYLINDER MOTOR DRIVE
DRIVE
PRE DRIVE
SERVO
TORQUE CORRECTION
FG AMP
B+
GND
PG613 CN613
V
W
U
HALL BIAS
PG(TACH)BIAS
U−
W−
V−
V+
W+
U+
PG(TACH)PULSE
CYL. FG
PG(TACH) SENSOR
CYL. MOTOR
R686 10
R687 10
R688 10
R685 330
R689 0.5(1/4W)
R683 22K
R673 18K
C642 10/16
C644 10/16
C643 10/16
C641 22/10
C640 0.1/50
D607-D609 DS135D x 3
D607 D609 D608
12V
5V1
To MAIN (SERVO) (1 0)-(9 0)
PG(TACH)PULSE
CYL. FG
CYL. FG
5V1
GND
CYL. SERVO
CAPST. SERVO
IC604
M54548L
CAPSTAN MOTOR DRIVE
FWD/REW/STOP/BRAKE CONTROL
MODE DET
SPEED CONTROL
MOTOR DRIVE
SERVO
LOW SPEED
F.FWD REW
To MAIN (SYSTEM CONTROL) (1 F)-(5 F)
CAPST. 0
CAPST. 1
CAPST. 2
12V
9V
SEARCH
CAPST. FG
B+(CAPST.)
To MAIN (SWITCHING REGULATOR) (1 R)
R695 10K
R697 18K
R632 15K
R631 100K
R630 82K
R629 100K
R633 10K
R647 1.2K
C661 22/16
C622 0.1/50
Q604
DTC144K(26)
SW
47K
47K
PG612 CN612
CAPSTAN MOTOR
FORWARD
GND
REWIND
CAPST. FG
GND
CAPST. FG
MAIN(CYL.-/CAPST.-MOTORS DRIVE SECTION)P.C.B

NOTE MARK "■" IS DISCRETE COMPONENT

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ELECTRONIC VIEWFINDER	5-19
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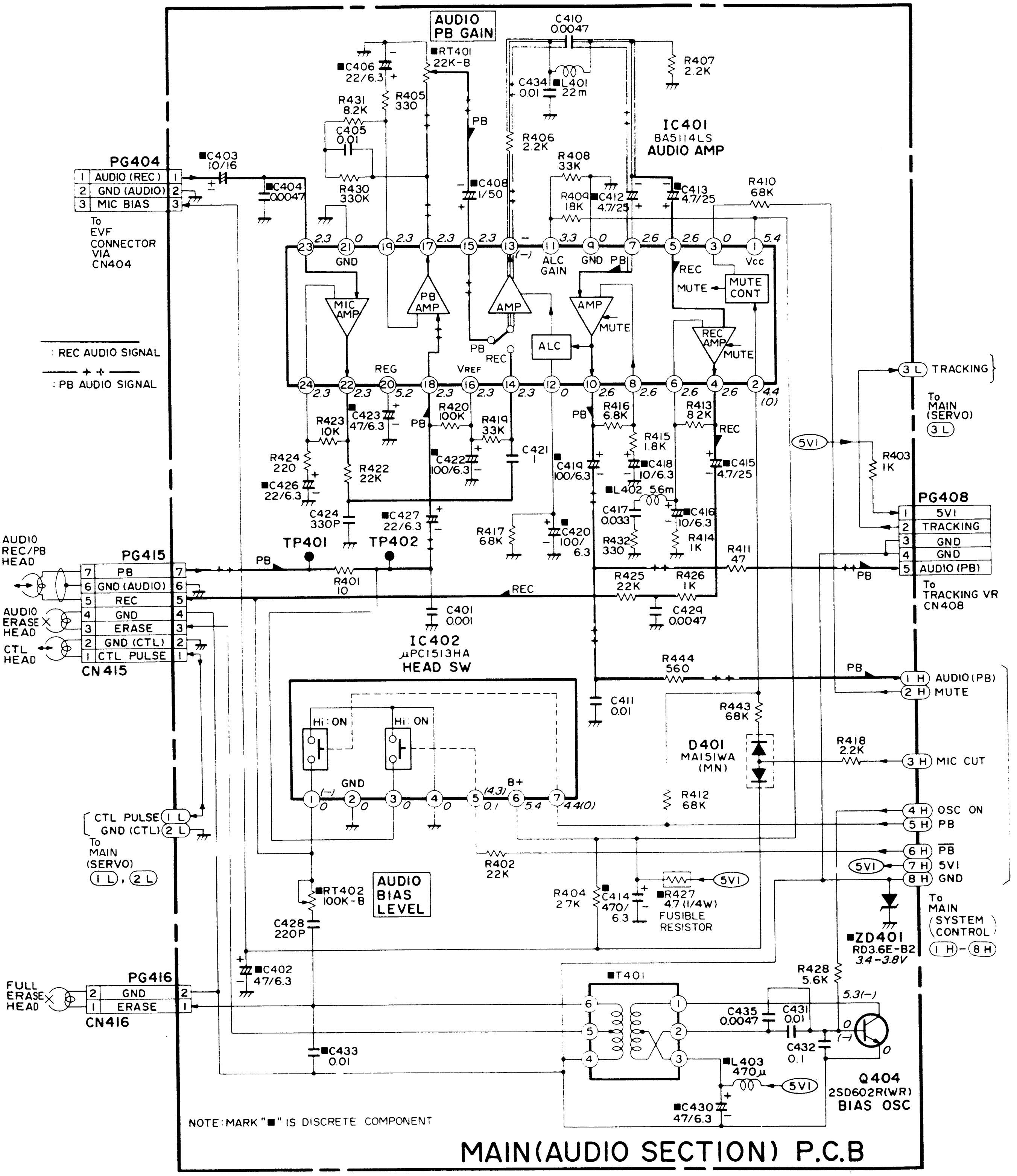
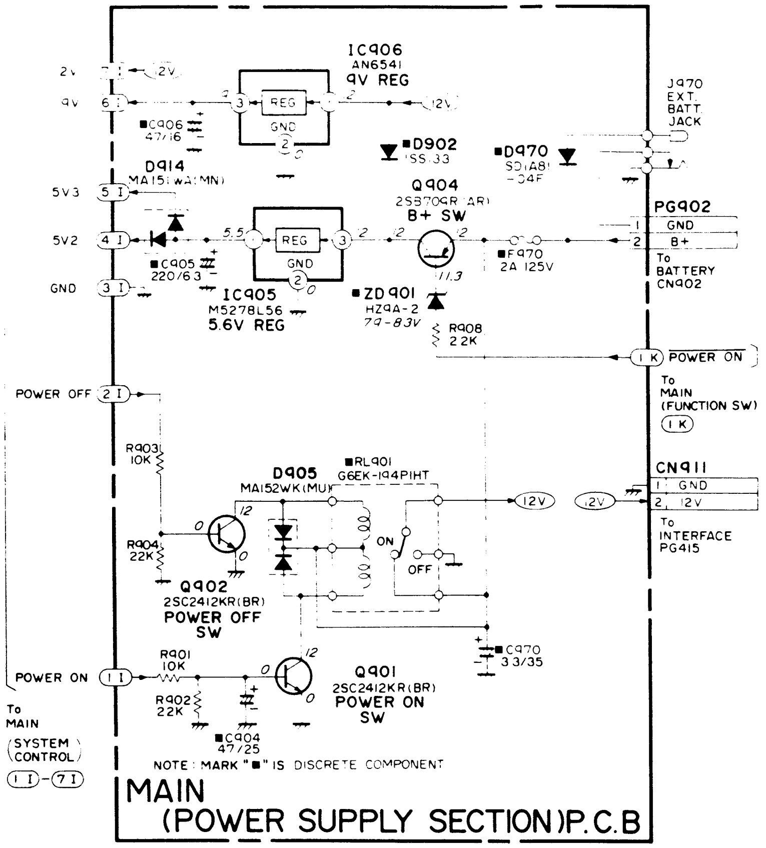
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

MAIN (AUDIO) SCHEMATIC DIAGRAM
HAUPT (AUDIO)-SCHALTPLAN


AUDIO PB GAIN
■RT401 22K-B
■C406 22/6.3
R431 8.2K
R405 330
C405 0.01
R430 330K
C410 0.0047
C434 0.01
■L401 22m
R407 2.2K
R406 2.2K
R408 33K
R409 18K
■C412 4.7/25
■C413 4.7/25
R410 68K
■C408 1/50
IC401
BA5114LS
AUDIO AMP
PG404
1 AUDIO (REC) 1
2 GND (AUDIO) 2
3 MIC BIAS 3
To EVF CONNECTOR VIA CN404
■C403 10/16
■C404 0.0047
GND
MIC AMP
PB AMP
AMP
ALC GAIN
GND PB
AMP
MUTE
REC
MUTE
MUTE CONT
Vcc
REC AMP
MUTE
ALC
PB
REC
REG
VREF
: REC AUDIO SIGNAL
: PB AUDIO SIGNAL
R423 10K
■C423 47/6.3
R420 100K
R419 33K
C421 1
R416 6.8K
R413 8.2K
R415 1.8K
R424 220
■C426 22/6.3
R422 22K
■C422 100/6.3
■C419 100/6.3
■C418 10/6.3
■C415 4.7/25
■L402 5.6m
C417 0.033
■C416 10/6.3
R414 1K
C424 330P
■C427 22/6.3
R417 68K
■C420 100/6.3
R432 330
R411 47
TP401
TP402
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CTL HEAD
PG415
7 PB 7
6 GND (AUDIO) 6
5 REC 5
4 GND 4
3 ERASE 3
2 GND (CTL) 2
1 CTL PULSE 1
CN415
R401 10
R425 22K
R426 1K
C429 0.0047
C401 0.001
IC402
μPC1513HA
HEAD SW
Hi: ON
Hi: ON
GND
B+
R444 560
C411 0.01
R443 68K
D401
MA151WA
(MN)
R412 68K
R418 2.2K
3 L TRACKING
To MAIN (SERVO) 3 L
5V1
R403 1K
PG408
1 5V1
2 TRACKING
3 GND
4 GND
5 AUDIO (PB)
To TRACKING VR CN408
1 H AUDIO (PB)
2 H MUTE
3 H MIC CUT
4 H OSC ON
5 H PB
6 H PB
7 H 5V1
8 H GND
To MAIN (SYSTEM CONTROL) 1 H - 8 H
CTL PULSE 1 L
GND (CTL) 2 L
To MAIN (SERVO) 1 L, 2 L
R402 22K
R404 27K
■C414 470/6.3
■R427 47 (1/4W) FUSIBLE RESISTOR
■RT402 100K-B
AUDIO BIAS LEVEL
C428 220P
■C402 47/6.3
■ZD401
RD3.6E-B2
3.4-3.8V
FULL ERASE HEAD
PG416
2 GND 2
1 ERASE 1
CN416
■T401
R428 5.6K
C435 0.0047
C431 0.01
C432 0.1
■C433 0.01
■L403 470μ
■C430 47/6.3
Q404
2SD602R(WR)
BIAS OSC
NOTE: MARK "■" IS DISCRETE COMPONENT
MAIN (AUDIO SECTION) P.C.B

MAIN (POWER UPPLY) SCHEMATIC DIAGRAM
HAUPT (STROMVERSORGUNG)-SCHALTPLAN



E
D
IC906
AN6541
9V REG
REG
GND
2V
9V
5V3
5V2
GND
POWER OFF
POWER ON
■C906
47/16
D914
MA151WA(MN)
■D902
SS 33
■D970
SD1A8
Q904
2SB709R(AR)
B+ SW
J970
EXT.
BATT.
JACK
PG902
GND
B+
To
BATTERY
CN902
■C905
220/6.3
IC905
M5278L56
5.6V REG
■F970
2A 125V
■ZD901
HZ9A-2
7.9-8.3V
R908
2.2K
POWER ON
To
MAIN
(FUNCTION SW)
1K
R903
10K
■RL901
G6EK-194PIHT
D905
MA152WK(MU)
12V
CN911
GND
12V
To
INTERFACE
PG415
ON
OFF
R904
22K
Q902
2SC2412KR(BR)
POWER OFF
SW
■C970
33/35
R901
10K
R902
22K
■C904
47/25
Q901
2SC2412KR(BR)
POWER ON
SW
To
MAIN
(SYSTEM
CONTROL)
1I-7I
NOTE : MARK "■" IS DISCRETE COMPONENT
MAIN
(POWER SUPPLY SECTION)P.C.B

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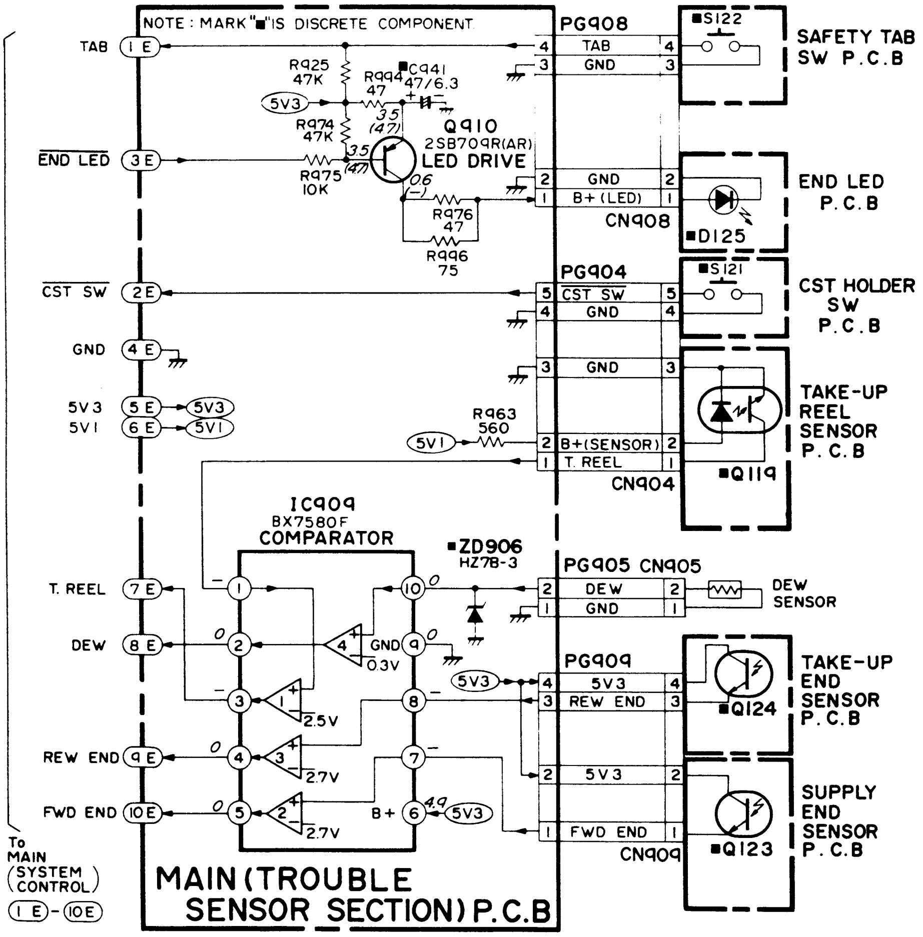
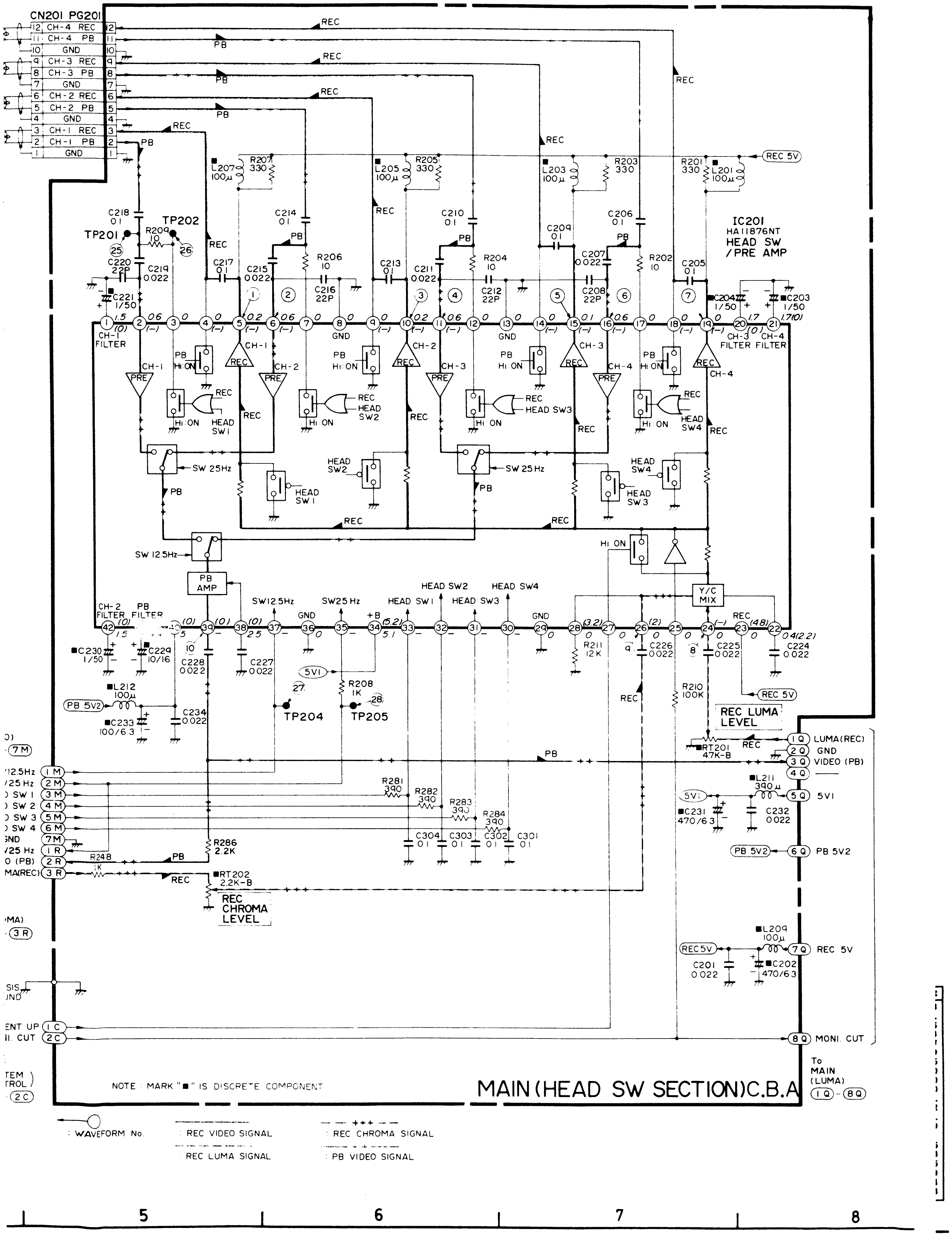
CYL.-/CAPST.-MOTORS DRIVE	5-27
ELECTRONIC VIEWFINDER	5-19
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

MAIN (TROUBLE SENSOR) SCHEMATIC DIGRAM
HAUPT (STÖRUNGSSENSOR)-SCHALTPLAN

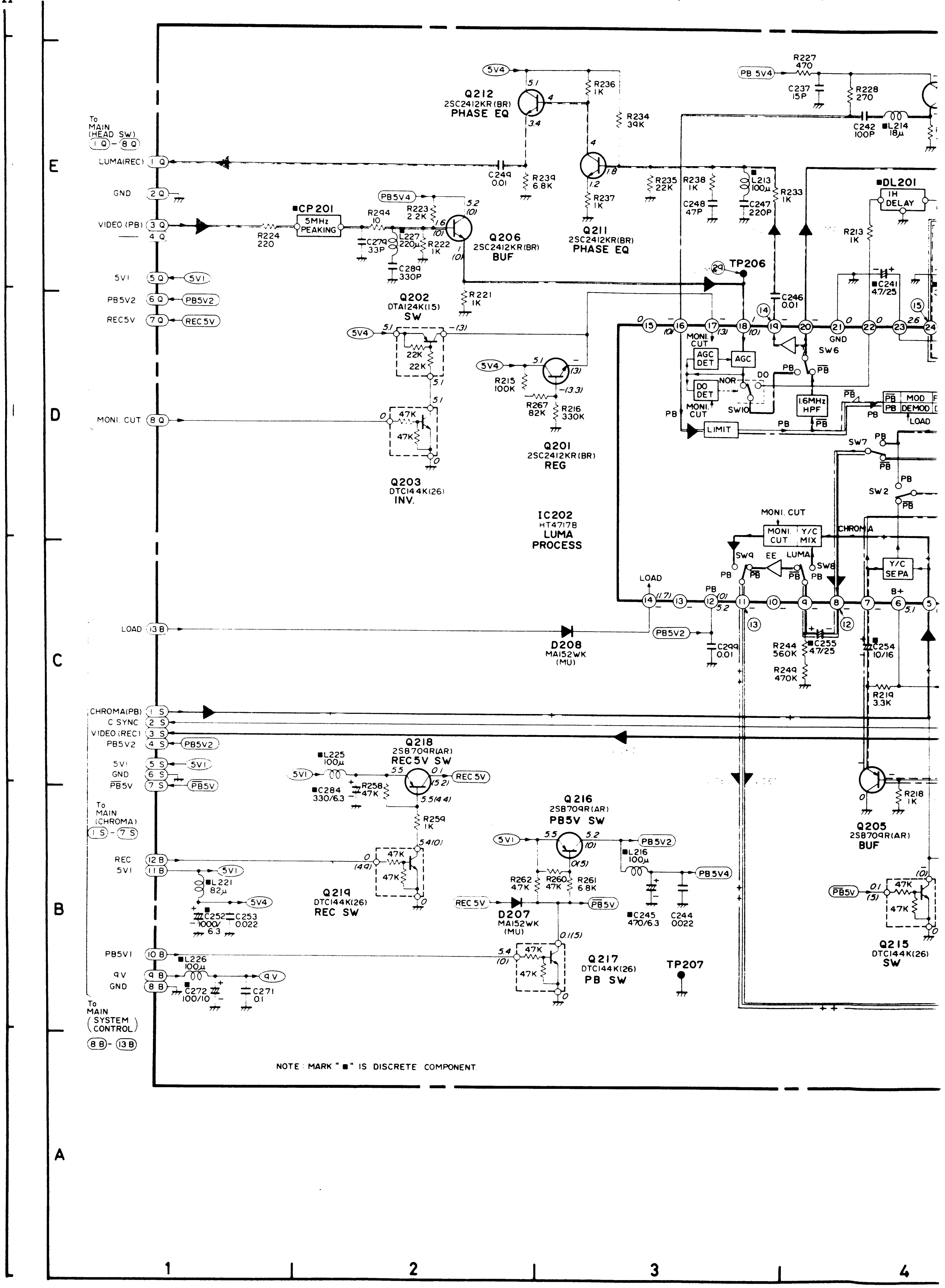


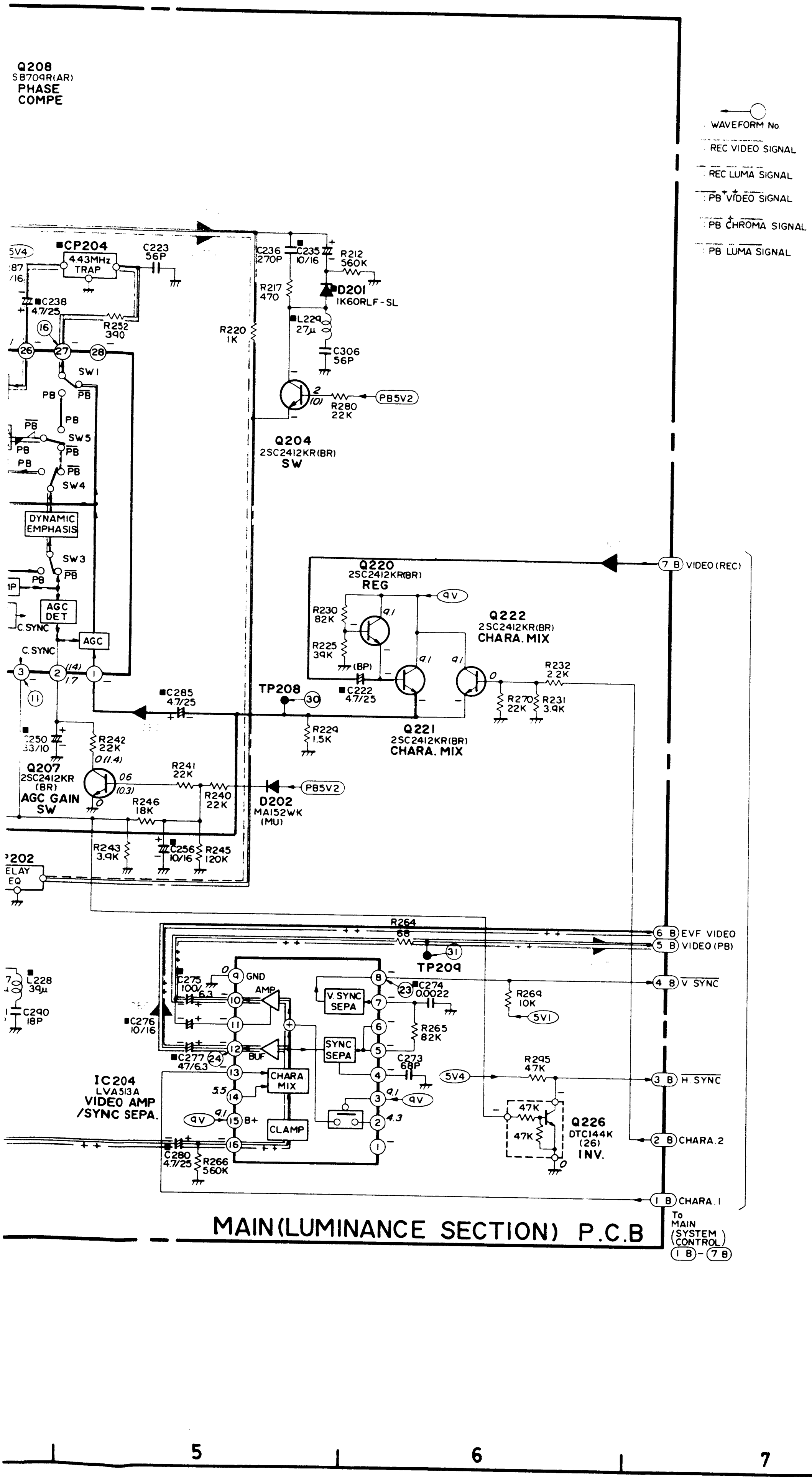
C
B
A
NOTE : MARK "■" IS DISCRETE COMPONENT
TAB
END LED
CST SW
GND
5V3
5V1
T. REEL
DEW
REW END
FWD END
R925
47K
R994
47
■C941
47/6.3
Q910
2SB709R(AR)
LED DRIVE
R974
47K
R975
10K
R976
47
R996
75
PG908
TAB
GND
B+ (LED)
CN908
■S122
SAFETY TAB
SW P.C.B
END LED
P.C.B
■D125
PG904
CST SW
■S121
CST HOLDER
SW
P.C.B
TAKE-UP
REEL
SENSOR
P. C. B
■Q119
R963
560
B+(SENSOR)
T. REEL
CN904
IC909
BX7580F
COMPARATOR
■ZD906
HZ7B-3
PG905 CN905
DEW
DEW
SENSOR
PG909
5V3
REW END
TAKE-UP
END
SENSOR
P.C.B
■Q124
FWD END
CN909
SUPPLY
END
SENSOR
P.C.B
■Q123
2.5V
2.7V
0.3V
B+
To
MAIN
(SYSTEM
CONTROL)
1E-10E
MAIN (TROUBLE
SENSOR SECTION) P.C.B
1
2
3
4

MAIN (HEAD SW) SCHEMATIC DIAGRAM
HAUPT (KOPFWECHSEL)-SCHALTPLAN


CN201 PG201
12 CH-4 REC
11 CH-4 PB
10 GND
9 CH-3 REC
8 CH-3 PB
7 GND
6 CH-2 REC
5 CH-2 PB
4 GND
3 CH-1 REC
2 CH-1 PB
1 GND
REC
PB
REC 5V
L207 100μ
R207 330
L205 100μ
R205 330
L203 100μ
R203 330
R201 330
L201 100μ
C218 01
TP201
R209 10
TP202
C214 01
C210 01
C209 01
C206 01
IC201
HA11876NT
HEAD SW
/PRE AMP
C220 22P
C219 0.022
C221 1/50
C217
C215 0.022
R206 10
C216 22P
C213 01
C211 0.022
R204 10
C212 22P
C207 0.022
R202 10
C208 22P
C205 01
C204 1/50
C203 1/50
CH-1 FILTER
CH-3 FILTER
CH-4 FILTER
GND
PB Hi ON
CH-1
CH-2
CH-3
CH-4
PRE
REC
Hi ON
HEAD SW1
HEAD SW2
HEAD SW3
HEAD SW4
SW 25Hz
SW 12.5Hz
PB AMP
Y/C MIX
CH-2 FILTER
PB FILTER
SW12.5Hz
SW25 Hz
+B
HEAD SW1
HEAD SW2
HEAD SW3
HEAD SW4
C230 1/50
C229 10/16
C228 0.022
C227 0.022
5V1
R208 1K
R211 12K
C226 0.022
C225 0.022
C224 0.022
L212 100μ
PB 5V2
C233 100/6.3
C234 0.022
TP204
TP205
R210 100K
REC LUMA LEVEL
RT201 47K-B
1Q LUMA(REC)
2Q GND
3Q VIDEO (PB)
4Q
5Q 5V1
6Q PB 5V2
7Q REC 5V
8Q MONI. CUT
L211 390μ
C231 470/6.3
C232 0.022
R281 390
R282 390
R283 390
R284 390
C304 01
C303 01
C302 01
C301 01
R286 2.2K
R248 1K
RT202 2.2K-B
REC CHROMA LEVEL
L209 100μ
C201 0.022
C202 470/6.3
12.5Hz 1M
25Hz 2M
SW 1 3M
SW 2 4M
SW 3 5M
SW 4 6M
GND 7M
25 Hz 1R
(PB) 2R
MA(REC) 3R
ENT UP 1C
I. CUT 2C
To MAIN (LUMA) 1Q-8Q
MAIN (HEAD SW SECTION) C.B.A
NOTE : MARK "■" IS DISCRETE COMPONENT
: WAVEFORM No.
: REC VIDEO SIGNAL
: REC LUMA SIGNAL
: REC CHROMA SIGNAL
: PB VIDEO SIGNAL
5
6
7
8

MAIN (LUMINANCE) SCHEMATIC DIAGRAM MAIN (LUMINANZ)-SCHALTPLAN


E
D
C
B
A
1
2
3
4
To MAIN (HEAD SW) 1 Q - 8 Q
LUMA(REC) 1 Q
GND 2 Q
VIDEO (PB) 3 Q
4 Q
5V1 5 Q
PB5V2 6 Q
REC5V 7 Q
MONI. CUT 8 Q
LOAD 13 B
CHROMA(PB) 1 S
C SYNC 2 S
VIDEO (REC) 3 S
PB5V2 4 S
5V1 5 S
GND 6 S
PB5V 7 S
To MAIN (CHROMA) 1 S - 7 S
REC 12 B
5V1 11 B
PB5V1 10 B
9V 9 B
GND 8 B
To MAIN (SYSTEM CONTROL) 8 B - 13 B
Q212 2SC2412KR(BR) PHASE EQ
Q211 2SC2412KR(BR) PHASE EQ
Q206 2SC2412KR(BR) BUF
Q202 DTA124K(15) SW
Q201 2SC2412KR(BR) REG
Q203 DTC144K(26) INV.
IC202 HT4717B LUMA PROCESS
D208 MA152WK (MU)
Q218 2SB709R(AR) REC5V SW
Q219 DTC144K(26) REC SW
Q216 2SB709R(AR) PB5V SW
D207 MA152WK (MU)
Q217 DTC144K(26) PB SW
TP207
TP206
Q205 2SB709R(AR) BUF
Q215 DTC144K(26) SW
■CP201 5MHz PEAKING
■DL201 1H DELAY
R224 220
R294 10
R223 2.2K
R222 1K
■L227 220μ
C279 33P
C289 330P
R221 1K
R236 1K
R234 39K
R239 6.8K
C249 0.01
R237 1K
R235 22K
R238 1K
C248 47P
■L213 100μ
C247 220P
R233 1K
R227 470
C237 15P
R228 270
C242 100P
■L214 18μ
R213 1K
C246 0.01
■C241 4.7/25
R215 100K
R267 82K
R216 330K
C299 0.01
R244 560K
R249 470K
■C255 4.7/25
■C254 10/16
R219 3.3K
R218 1K
■L225 100μ
■C284 330/6.3
R258 47K
R259 1K
■L221 82μ
■C252 1000/6.3
C253 0.022
■L226 100μ
■C272 100/10
C271 0.1
■L216 100μ
R262 4.7K
R260 47K
R261 6.8K
■C245 470/6.3
C244 0.022
5V4
PB 5V4
PB5V4
5V1
PB5V2
REC 5V
PB5V
9V
MONI. CUT
AGC DET
AGC
DO DET
NOR
DO
SW10
LIMIT
1.6MHz HPF
SW6
SW7
SW2
SW8
SW9
MOD
DEMOD
LOAD
MONI. CUT
Y/C MIX
CHROMA
EE
LUMA
Y/C SEPA
B+
GND
PB
NOTE: MARK "■" IS DISCRETE COMPONENT.


Q208
S8709R(AR)
PHASE
COMPE
WAVEFORM No
REC VIDEO SIGNAL
REC LUMA SIGNAL
PB VIDEO SIGNAL
PB CHROMA SIGNAL
PB LUMA SIGNAL
CP204
4.43MHz TRAP
C223 56P
C236 270P
C235 10/16
R212 560K
R217 470
D201 1K60RLF-SL
C238 47/25
R252 390
R220 1K
L229 27µ
C306 56P
SW1
SW5
SW4
SW3
PB
R280 22K
PB5V2
Q204
2SC2412KR(BR)
SW
DYNAMIC EMPHASIS
AGC DET
AGC
C.SYNC
Q220
2SC2412KR(BR)
REG
9V
R230 82K
R225 39K
(BP)
C222 47/25
Q222
2SC2412KR(BR)
CHARA. MIX
R232 2.2K
R270 22K
R231 3.9K
Q221
2SC2412KR(BR)
CHARA. MIX
TP208
C285 47/25
R229 1.5K
C250 33/10
R242 22K
Q207
2SC2412KR
(BR)
AGC GAIN SW
R241 22K
R240 22K
R246 18K
D202
MA152WK
(MU)
R243 3.9K
C256 10/16
R245 120K
P202
DELAY EQ
L228 39µ
C290 18P
R264 68
TP209
C275 100/6.3
C276 10/16
C277 47/6.3
GND
AMP
BUF
V.SYNC SEPA
SYNC SEPA
CHARA MIX
CLAMP
B+
C274 0.0022
R265 82K
C273 68P
R269 10K
5V1
5V4
R295 47K
47K
47K
Q226
DTC144K
(26)
INV.
IC204
LVA513A
VIDEO AMP
/SYNC SEPA.
C280 47/25
R266 560K
7 B VIDEO (REC)
6 B EVF VIDEO
5 B VIDEO (PB)
4 B V. SYNC
3 B H. SYNC
2 B CHARA. 2
1 B CHARA. 1
To MAIN (SYSTEM CONTROL) 1 B - 7 B
MAIN (LUMINANCE SECTION) P.C.B
5
6
7
8

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FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
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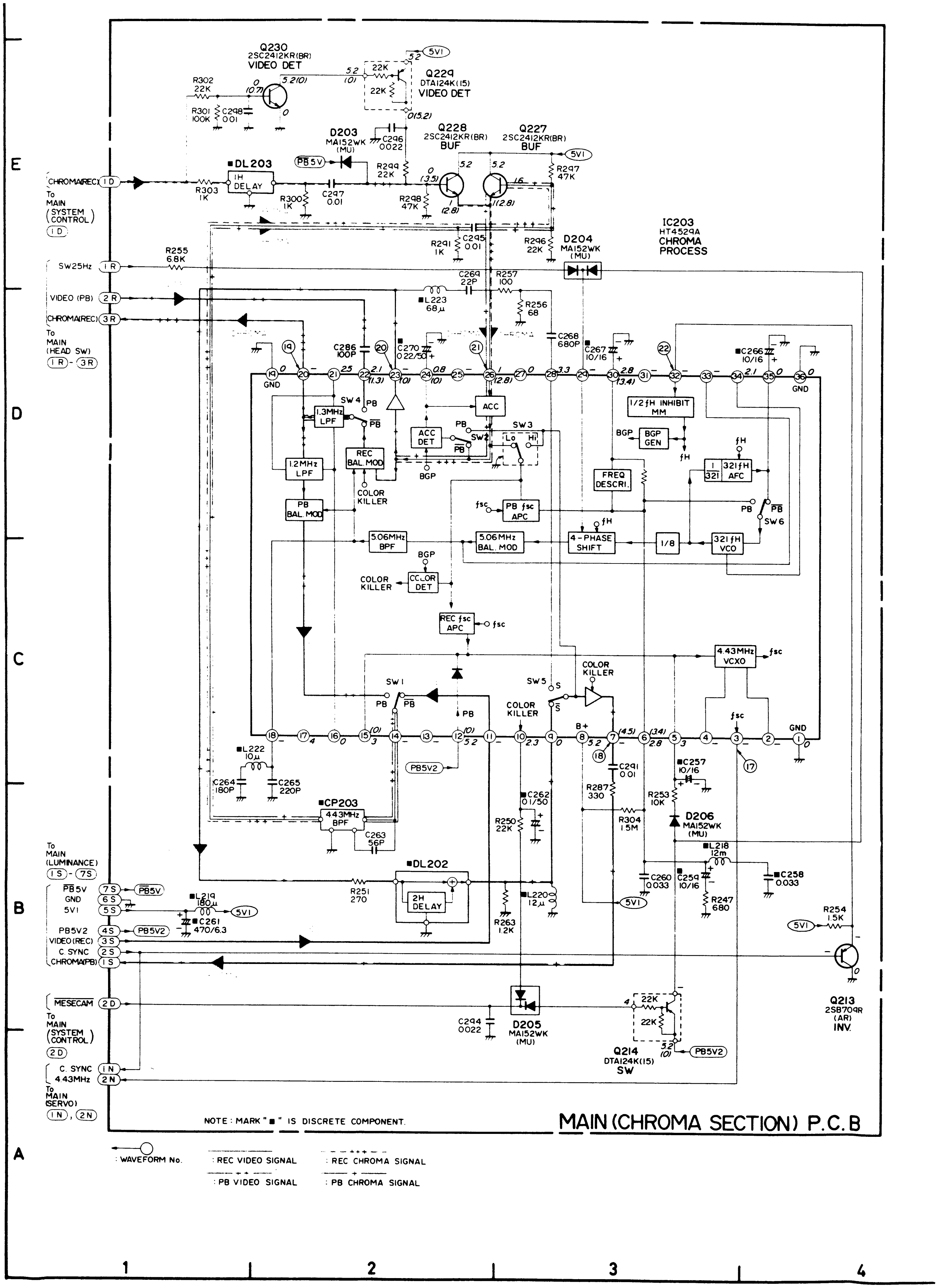
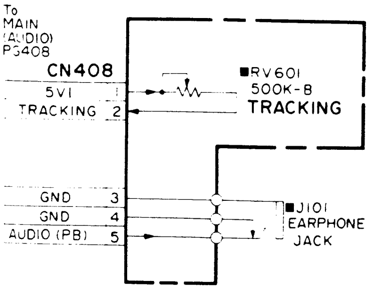
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

MAIN (CHROMA) SCHEMATIC DIAGRAM HAUPT (CHROMA)-SCHALTPLAN

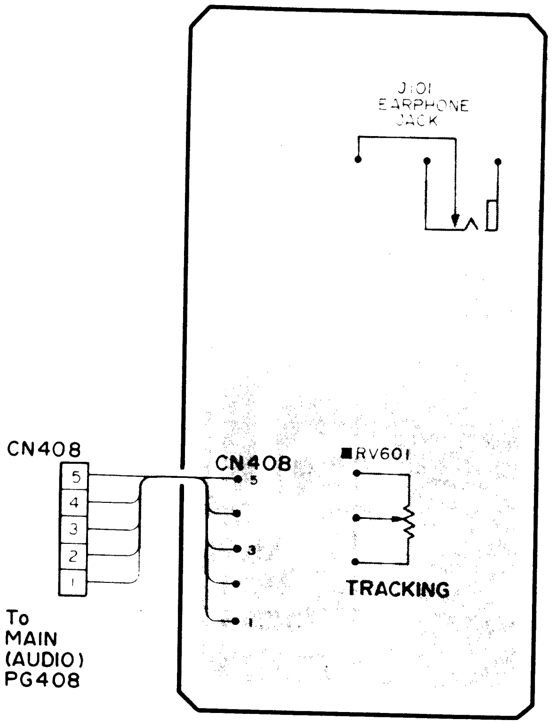

Q230
2SC2412KR(BR)
VIDEO DET
Q229
DTA124K(15)
VIDEO DET
R302 22K
R301 100K
C298 0.01
D203
MA152WK
(MU)
C296 0.022
R299 22K
Q228
2SC2412KR(BR)
BUF
Q227
2SC2412KR(BR)
BUF
R297 47K
5V1
PB5V
DL203
1H DELAY
R303 1K
R300 1K
C297 0.01
R298 47K
CHROMA(REC) 1D
To MAIN (SYSTEM CONTROL) 1D
R291 1K
C295 0.01
R296 22K
D204
MA152WK
(MU)
IC203
HT4529A
CHROMA PROCESS
R255 6.8K
SW25Hz 1R
VIDEO (PB) 2R
CHROMA(REC) 3R
To MAIN (HEAD SW) 1R - 3R
C269 22P
R257 100
L223 68μ
R256 68
C268 680P
C267 10/16
C286 100P
C270 0.22/50
C266 10/16
GND
1.3MHz LPF
SW4
PB
ACC
ACC DET
SW2
SW3
Lo
Hi
REC BAL.MOD
1.2MHz LPF
BGP
COLOR KILLER
PB BAL.MOD
1/2fH INHIBIT MM
BGP GEN
fH
FREQ DESCRI.
1/321
321fH AFC
fsc
PB fsc APC
SW6
5.06MHz BPF
5.06MHz BAL. MOD
4-PHASE SHIFT
1/8
321fH VCO
COLOR DET
REC fsc APC
4.43MHz VCXO
SW1
SW5
S
COLOR KILLER
B+
L222 10μ
C264 180P
C265 220P
PB5V2
C291 0.01
R287 330
C257 10/16
R253 10K
R304 1.5M
D206
MA152WK
(MU)
C262 0.1/50
R250 22K
CP203
4.43MHz BPF
C263 56P
L218 12m
C258 0.033
C260 0.033
C259 10/16
R247 680
DL202
2H DELAY
R251 270
L220 12μ
R263 1.2K
To MAIN (LUMINANCE) 1S - 7S
PB5V 7S
GND 6S
5V1 5S
L219 180μ
C261 470/6.3
PB5V2 4S
VIDEO(REC) 3S
C. SYNC 2S
CHROMA(PB) 1S
R254 1.5K
Q213
2SB709R
(AR)
INV.
MESECAM 2D
To MAIN (SYSTEM CONTROL) 2D
C294 0.022
D205
MA152WK
(MU)
22K
Q214
DTA124K(15)
SW
C. SYNC 1N
4.43MHz 2N
To MAIN (SERVO) 1N, 2N
NOTE : MARK "■" IS DISCRETE COMPONENT.
MAIN (CHROMA SECTION) P.C.B
: WAVEFORM No.
: REC VIDEO SIGNAL
: REC CHROMA SIGNAL
: PB VIDEO SIGNAL
: PB CHROMA SIGNAL
E
D
C
B
A
1
2
3
4

TRACKING VR SCHEMATIC DIAGRAM
SPURLAGENREGLER-SCHALTPLAN


To
MAIN
(AUDIO)
PG408
CN408
5V 1
TRACKING 2
■RV601
500K-B
TRACKING
GND 3
GND 4
AUDIO (PB) 5
■J101
EARPHONE
JACK

TRACKING VR
P.C.B

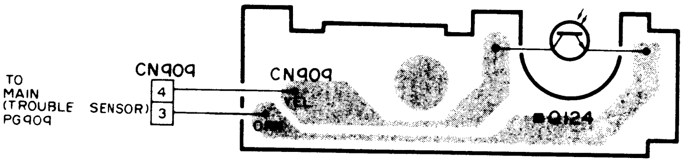
TRACKING VR CIRCUIT BOARD
SPURLAGENREGLER-LEITERPLATTE


J101
EARPHONE
JACK
CN408
5
4
3
2
1
To
MAIN
(AUDIO)
PG408
CN408
5
3
1
■RV601
TRACKING

TRACKING VR P.C.B

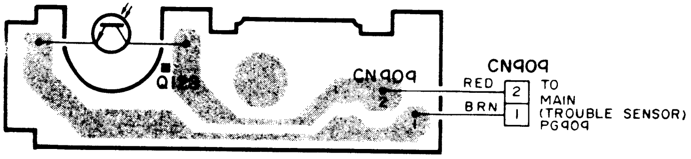
NOTE: MARK " ■ " IS DISCRETE COMPONENT.

TAKE-UP END SENSOR CIRCUIT BOARD
WICKELTELLER-BANDENDSENSOR-LEITERPLATTE


TO
MAIN
(TROUBLE SENSOR)
PG909
CN909
4
3
CN909
YEL
GRN
■Q124

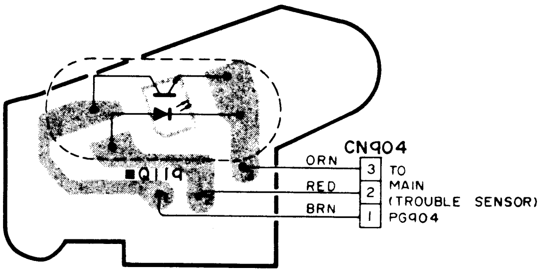
TAKE-UP END SENSOR P.C.B

SUPPLY END SENSOR CIRCUIT BOARD
VORRATSTELLER-BANDENDSENSOR-LEITERPLATTE


■
Q128
CN909
2
1
CN909
RED
BRN
2
1
TO
MAIN
(TROUBLE SENSOR)
PG909

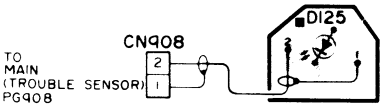
SUPPLY END SENSOR P.C.B

TAKE-UP REEL SENSOR CIRCUIT BOARD
AUFWICKELLTELLERSENSOR-LEITERPLATTE


■Q119
CN904
ORN
RED
BRN
3
2
1
TO
MAIN
(TROUBLE SENSOR)
PG904

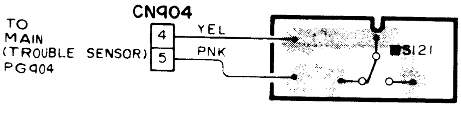
TAKE-UP REEL SENSOR
P.C.B

END LED CIRCUIT BOARD
BANDENDENLAMPE-LEITERPLATTE


TO
MAIN
(TROUBLE SENSOR)
PG908
CN908
2
1
■D125
2
1

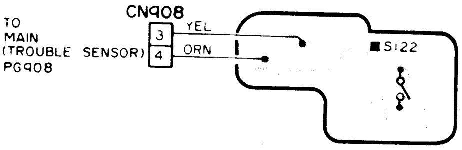
END LED
P.C.B

CST. HOLDER SW CIRCUIT BOARD
CASSETTENHALTERSCHALTER-LEITERPLATTE


TO
MAIN
(TROUBLE SENSOR)
PG904
CN904
4
5
YEL
PNK
■S121

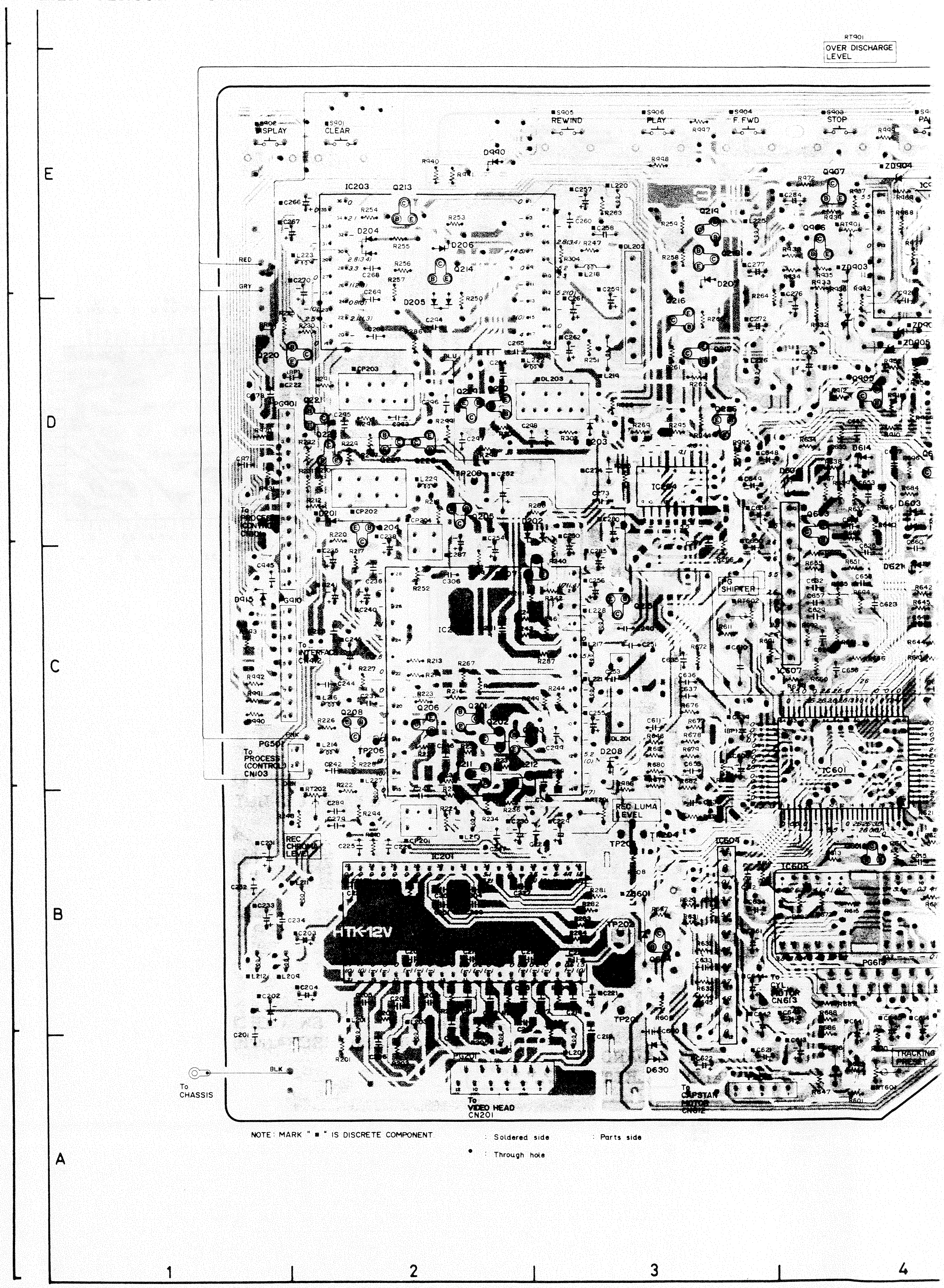
CASSETTE
HOLDER SW P.C.B

SAFETY TAB SW CIRCUIT BOARD
LÖSCHSCHUTZSCHALTER-LEITERPLATTE


TO
MAIN
(TROUBLE SENSOR)
PG908
CN908
3
4
YEL
ORN
■S122

SAFETY TAB SW P.C.B

MAIN CIRCUIT BOARD HAUPT-LEITERPLATTE

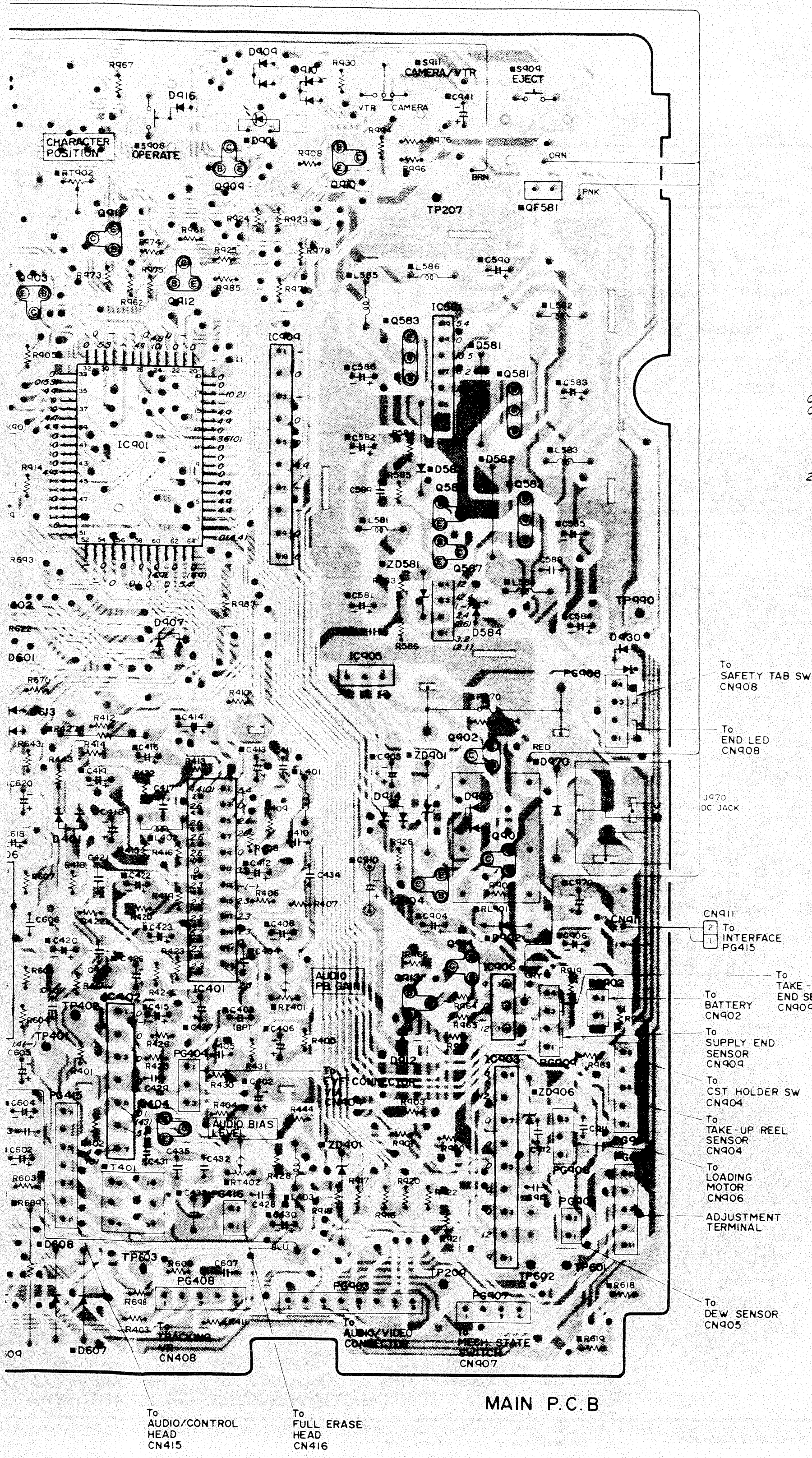

RT901
OVER DISCHARGE LEVEL
S902 DISPLAY
S901 CLEAR
S905 REWIND
S906 PLAY
S904 F.FWD
S903 STOP
IC203
Q213
RED
GRY
BLU
To PROCESS (CONTROL) CN103
To INTERFACE CN402
PG501
REC CHROMA LEVEL
REC LUMA LEVEL
FG SHIFTER
IC201
HTK-12V
IC601
IC604
IC605
IC607
To CYL MOTOR CN613
TRACKING PRESET
To CAPSTAN MOTOR CN612
To VIDEO HEAD CN201
PG201
To CHASSIS
BLK
E
D
C
B
A
1
2
3
4

NOTE: MARK "■" IS DISCRETE COMPONENT

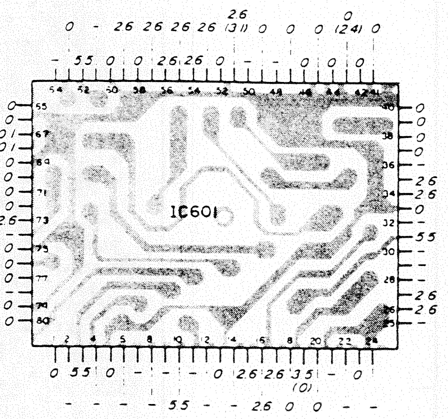
: Soldered side

: Parts side

• : Through hole


CHARACTER POSITION
S908 OPERATE
S911 CAMERA/VTR
VTR CAMERA
S909 EJECT
IC901
IC904
IC581
IC401
IC906
IC903
IC905
Q583
Q581
Q582
Q587
D581
D582
D584
ZD581
ZD401
ZD906
TP207
TP990
TP603
TP602
TP601
QF581
ORN
PNK
BRN
RED
BLU
AUDIO PB GAIN
AUDIO BIAS LEVEL
EVF CONNECTOR
J970 DC JACK
CN911
To INTERFACE PG415
To SAFETY TAB SW CN908
To END LED CN908
To TAKE-UP END SENSOR CN909
To BATTERY CN902
To SUPPLY END SENSOR CN909
To CST HOLDER SW CN904
To TAKE-UP REEL SENSOR CN904
To LOADING MOTOR CN906
ADJUSTMENT TERMINAL
To DEW SENSOR CN905
To TRACKING VR CN408
To AUDIO/VIDEO CONNECTOR
To MECH. STATE SWITCH CN907
To AUDIO/CONTROL HEAD CN415
To FULL ERASE HEAD CN416

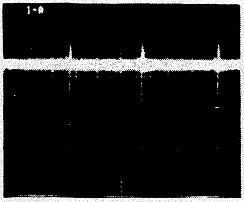
MAIN P.C.B


IC601
26
0 - 26 26 26 26 (31) 0 0 0 (24) 0
- 55 0 0 26 26 0 - - - 0 0 0
0 55 0 - - - 0 26 26 35 - 0
(0)
- - - - 55 - - 26 0 0 - -
2.6
26
55

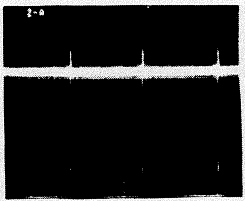
WAVEFORMS WELLENFORMEN

SENSOR

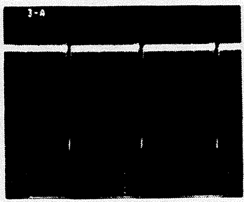
1-A IC002-9 870mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



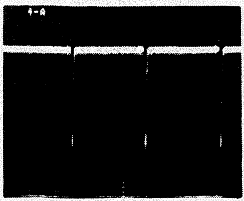
2-A IC002-10 1.1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



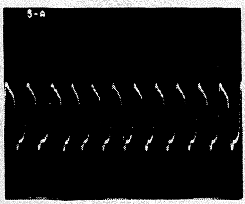
3-A IC003-9 860mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



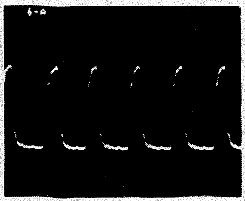
4-A IC003-10 860mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



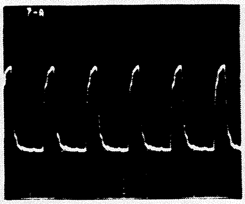
5-A IC005-5 5.8Vp-p
2V/100nsec.cm
COLOR CHART



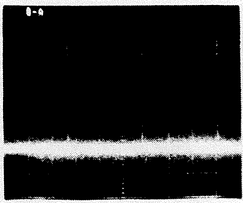
6-A IC005-16 3.5Vp-p
1V/100nsec.cm
COLOR CHART



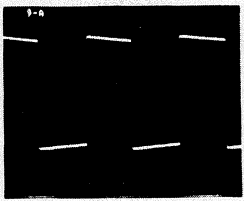
7-A IC005-17 3.5Vp-p
1V/100nsec.cm
COLOR CHART



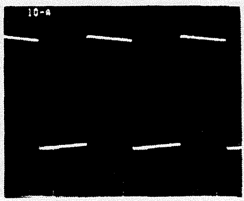
8-A IC005-19 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



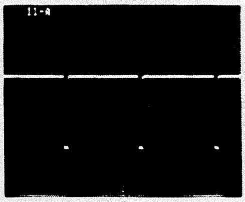
9-A IC005-20 4.8Vp-p
1V/10.0msec.cm
COLOR CHART



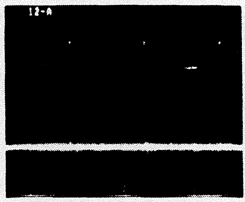
10-A IC005-21 4.8Vp-p
1V/10.0msec.cm
COLOR CHART



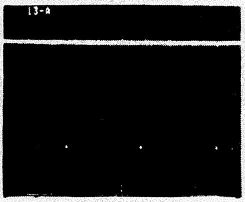
11-A IC005-22 3.0Vp-p
1V/20.0μ sec.cm
COLOR CHART



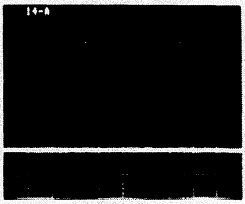
12-A IC005-23 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



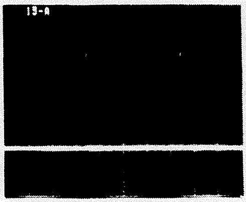
13-A IC005-24 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



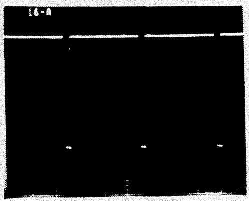
14-A IC005-25 4.5Vp-p
1V/5.0msec.cm
COLOR CHART



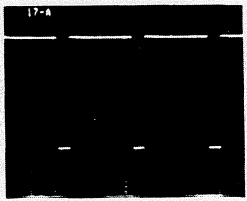
15-A IC005-33 4.0Vp-p
1V/5.0msec.cm
COLOR CHART



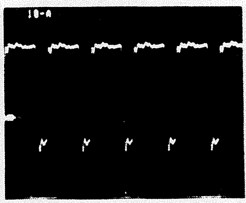
16-A IC005-35 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



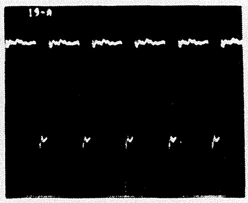
17-A IC005-36 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



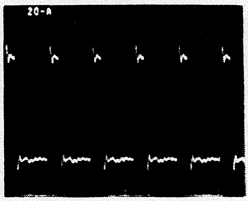
18-A IC005-39 4.5Vp-p
1V/100nsec.cm
COLOR CHART



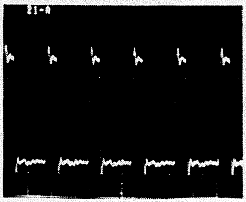
19-A IC005-40 4.6Vp-p
1V/100nsec.cm
COLOR CHART



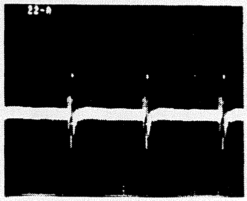
20-A IC005-41 5.4Vp-p
1V/100nsec.cm
COLOR CHART



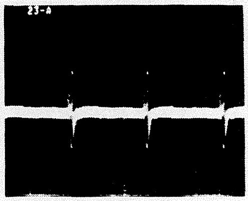
21-A IC005-42 5.3Vp-p
1V/100nsec.cm
COLOR CHART



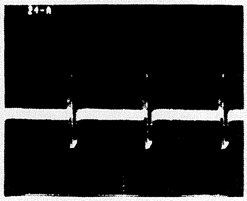
22-A IC006-4 3.1Vp-p
1V/20.0μ sec.cm
COLOR CHART



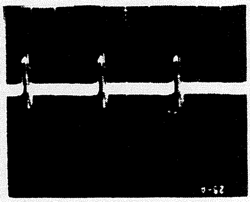
23-A IC006-5 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



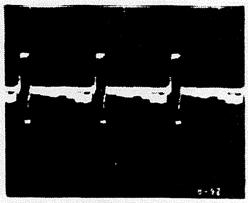
24-A IC006-12 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



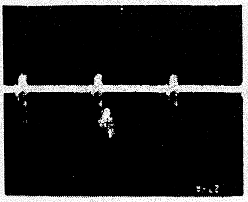
25-A IC006-13 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



26-A IC007-13 1.5Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

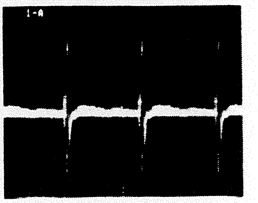


27-A IC007-15 1.5Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

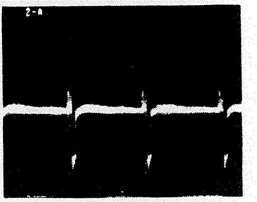


PROCESS

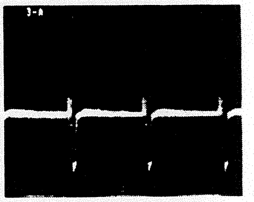
1-A IC101-4 1.1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



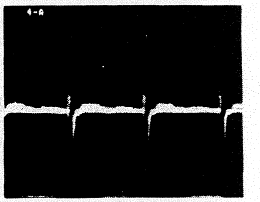
2-A IC101-5 2.9Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



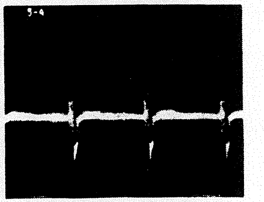
3-A IC101-6 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



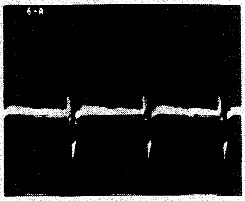
4-A IC101-7 2.9Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

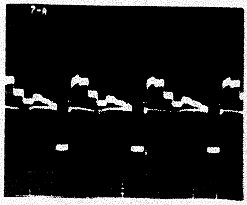


5-A IC101-9 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

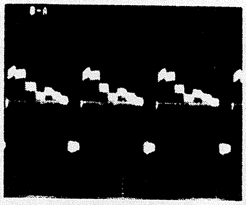


6-A IC101-10 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

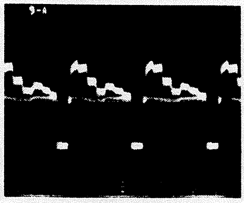




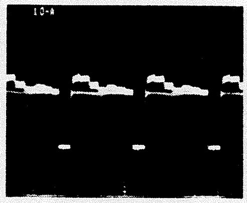
7-A IC103-9 600mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



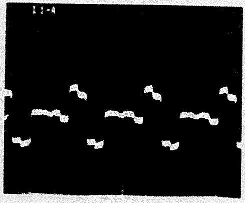
8-A IC103-11 340mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



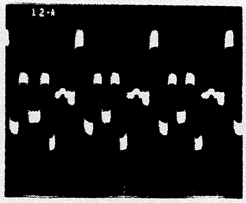
9-A IC103-15 360mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



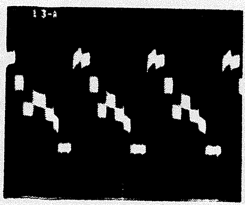
10-A IC103-24 1.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



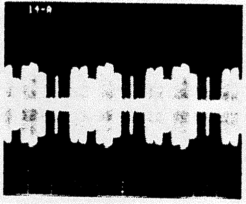
11-A IC104-2 520mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



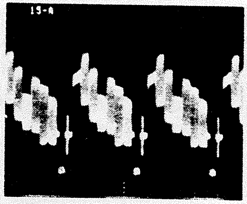
12-A IC104-3 1.0Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



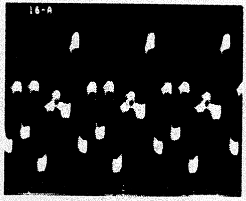
13-A IC105-13 430mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



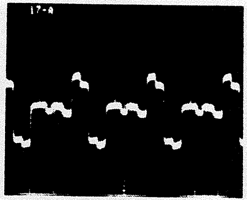
14-A IC105-19 350mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



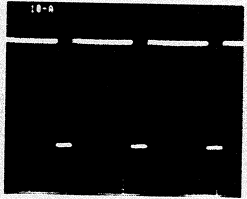
15-A IC105-25 1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



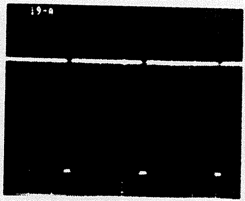
16-A IC106-15 580mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



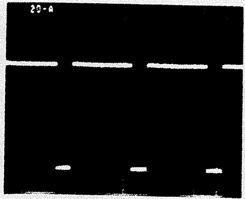
17-A IC106-16 610mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



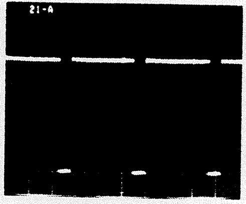
18-A IC107-5 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



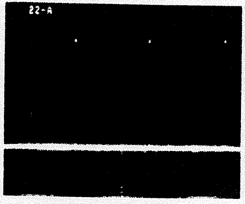
19-A IC107-7 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



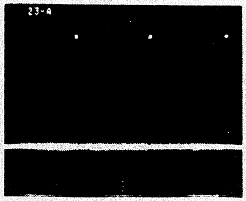
20-A IC107-8 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



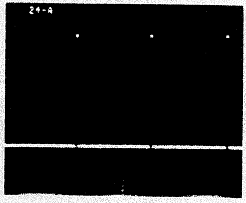
21-A IC107-9 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



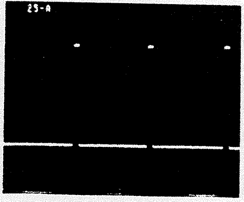
22-A IC107-10 4.6Vp-p
1V/20.0μ sec.cm
COLOR CHART



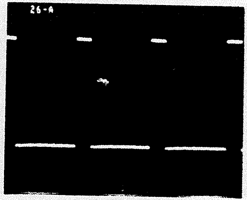
23-A IC107-11 4.8Vp-p
1V/20.0μ sec.cm
COLOR CHART



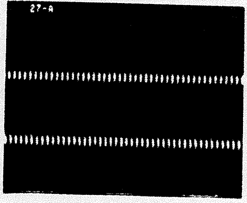
24-A IC107-12 4.8Vp-p
1V/20.0μ sec.cm
COLOR CHART



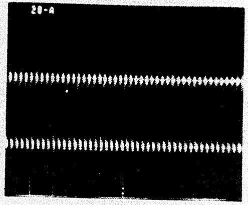
25-A IC107-16 4.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



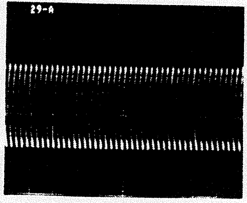
26-A IC107-17 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



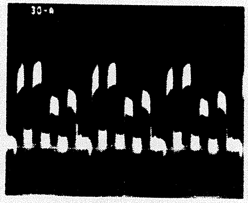
27-A IC107-22 150mVp-p
50mV/1.0μ sec.cm
COLOR CHART



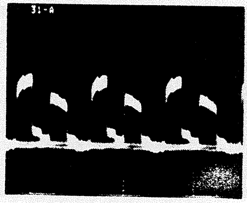
28-A IC107-23 150mVp-p
50mV 1.0μ sec.cm
COLOR CHART



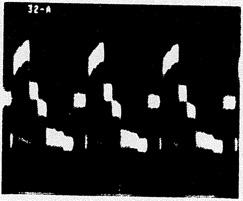
29-A TP102 350mVp-p
0.1V/1.0μ sec.cm
COLOR CHART



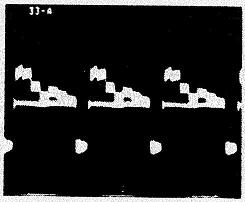
30-A PG106-3 230mVp-p
50mV/20.0μ sec.cm
COLOR CHART



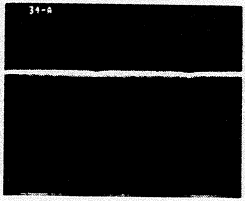
31-A PG106-4 300mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



32-A PG106-5 220mVp-p
50mV/20.0μ sec.cm
COLOR CHART

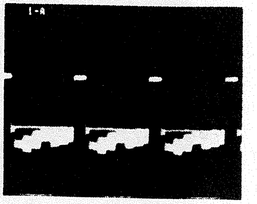


33-A PG106-6 340mVp-p
0.1V/20.0μ sec.cm
COLOR CHART

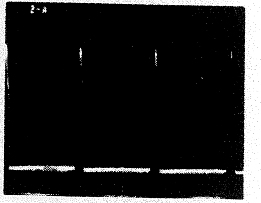


34-A PG106-7 3.2Vp-p
1V/5.0msec.cm
COLOR CHART

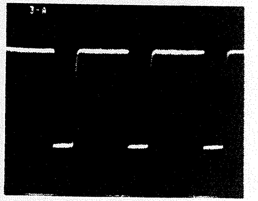
ELECTRONIC VIEWFINDER (EVF)



1-A IC801-10 1.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

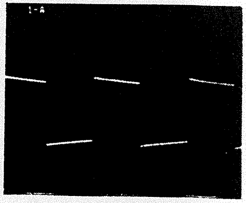


2-A T801-3 100Vp-p
20V/20.0μ sec.cm
COLOR CHART

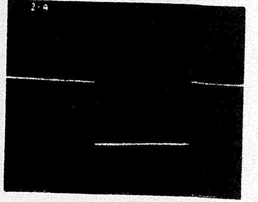


3-A TP801 8.2Vp-p
2V/20.0μ sec.cm
COLOR CHART

SERVO



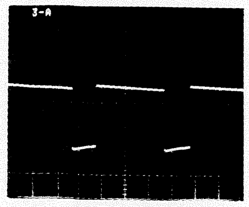
1-A IC601-2 6.0Vp-p
2V/20.0msec.cm
REC/PLAY



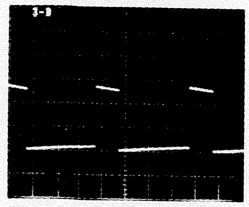
2-A IC601-4 5.6Vp-p
2V/5.0msec.cm
REC/PLAY

LUMINANCE /CHROMA

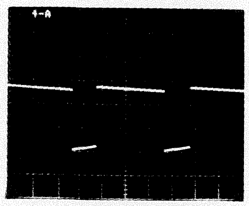
3-A IC601-6 5.6Vp-p
2V/20.0msec.cm
REC



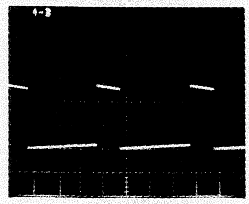
3-B IC601-6 5.6Vp-p
2V/20.0msec.cm
PLAY



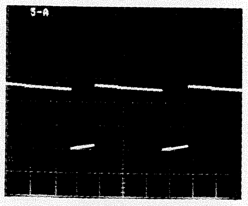
4-A IC601-7 5.6Vp-p
2V/20.0msec.cm
REC



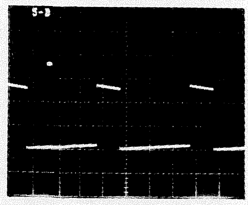
4-B IC601-7 5.6Vp-p
2V/20.0msec.cm
PLAY



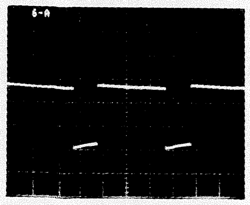
5-A IC601-8 5.6Vp-p
2V/20.0msec.cm
REC



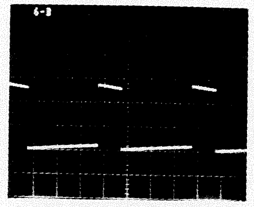
5-B IC601-8 5.6Vp-p
2V/20.0msec.cm
PLAY



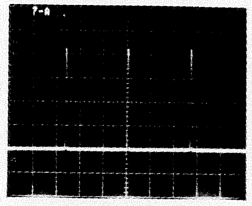
6-A IC601-9 5.6Vp-p
2V/20.0msec.cm
REC



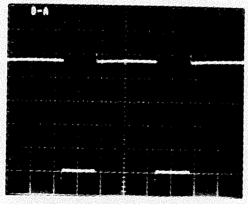
6-B IC601-9 5.6Vp-p
2V/20.0msec.cm
PLAY



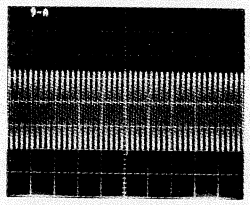
7-A IC601-14 4.3Vp-p
1V/10.0msec.cm
REC/PLAY



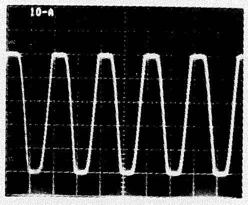
8-A IC601-19 4.8Vp-p
1V/10.0msec.cm
REC



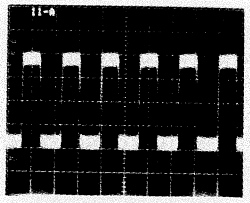
9-A IC601-24 320mVp-p
0.1V/1.0μ sec.cm
REC/PLAY



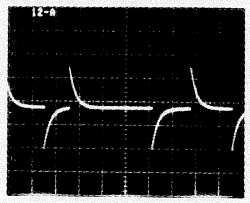
10-A IC601-36 5.0Vp-p
1V/1.0msec.cm
REC/PLAY



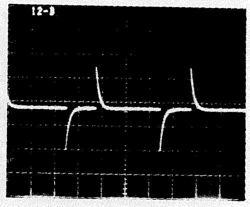
11-A IC601-74 200mVp-p
50mV/1.0msec.cm
REC/PLAY



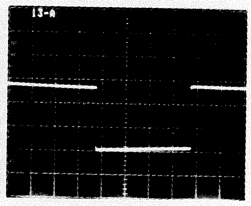
12-A TP602 7.0Vp-p
2V/5.0msec.cm
REC



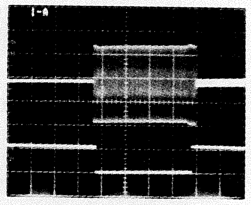
12-B TP602 7.0Vp-p
2V/10.0msec.cm
PLAY



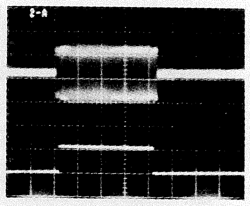
13-A PG601-4 5.6Vp-p
2V/5.0msec.cm
REC/PLAY



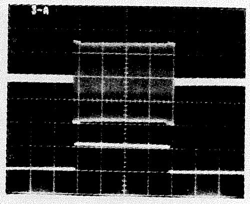
1-A IC201-5 3.5Vp-p
1V/5.0msec.cm
REC



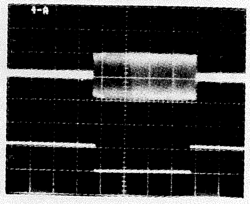
2-A IC201-6 250mVp-p
0.1V/5.0msec.cm
REC



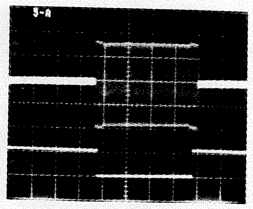
3-A IC201-10 3.6Vp-p
1V/5.0msec.cm
REC



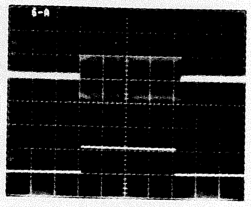
4-A IC201-11 200mVp-p
0.1V/5.0msec.cm
REC



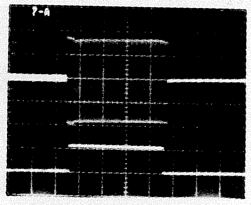
5-A IC201-15 3.7Vp-p
1V/5.0msec.cm
REC



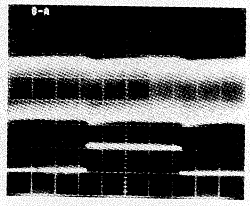
6-A IC201-16 200mVp-p
0.1V/5.0msec.cm
REC



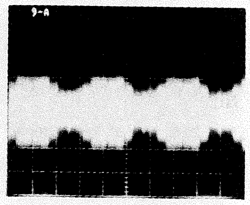
7-A IC201-19 3.8Vp-p
1V/5.0msec.cm
REC



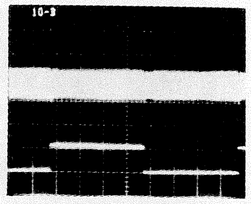
8-A IC201-24 150mVp-p
50mV/5.0msec.cm
REC/PLAY



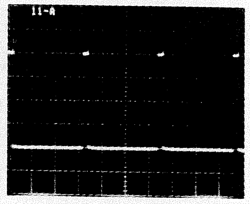
9-A IC201-26 60mVp-p
20mV/20.0μ sec.cm
REC



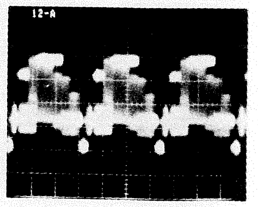
10-B IC201-39 700mVp-p
0.5V/5.0msec.cm
PLAY



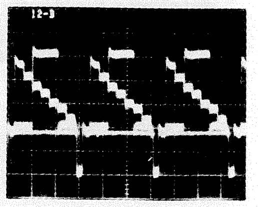
11-A IC202-3 4.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



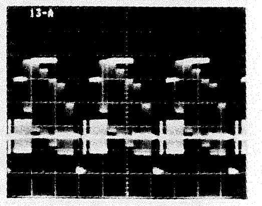
12-A IC202-8 200mVp-p
50mV/20.0μ sec.cm
REC



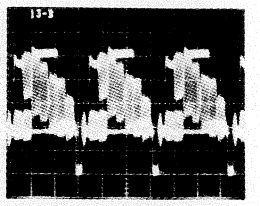
12-B IC202-8 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



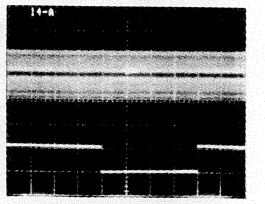
13-A IC202-11 950mVp-p
0.2V/20.0μ sec.cm
REC



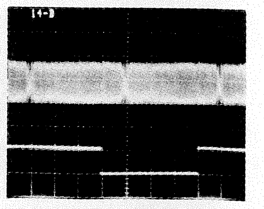
13-B IC202-11 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



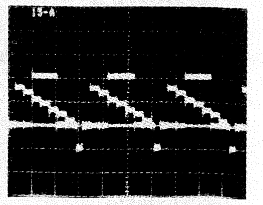
14-A IC202-19 450mVp-p
0.2V/5.0msec.cm
REC



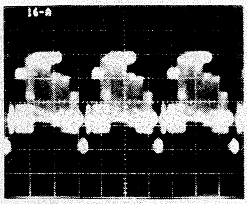
14-B IC202-19 350mVp-p
0.2V/5.0msec.cm
PLAY



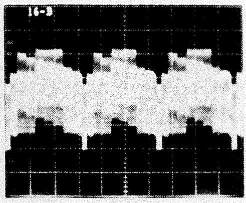
15-A IC202-24 640mVp-p
0.2V/20.0μ sec.cm
REC/PLAY



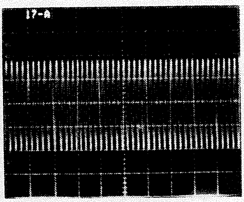
16-A IC202-27 200mVp-p
50mV/20.0μ sec.cm
REC



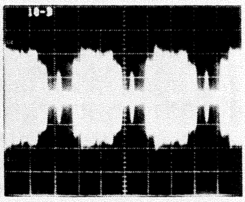
16-B IC202-27 430mVp-p
0.1V/20.0μ sec.cm
PLAY



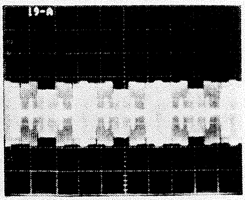
17-A IC203-3 380mVp-p
0.1V/1.0μ sec.cm
REC/PLAY



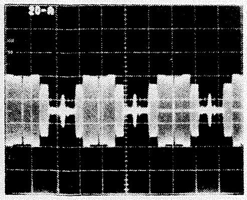
18-B IC203-7 420mVp-p
0.1V/20.0μ sec.cm
PLAY



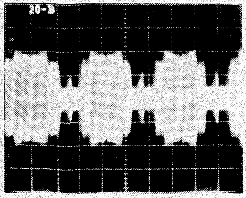
19-A IC203-20 570mVp-p
0.2V/20.0μ sec.cm
REC



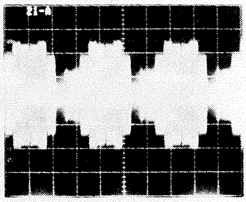
20-A IC203-23 600mVp-p
0.2V/20.0μ sec.cm
REC



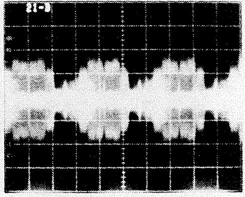
20-B IC203-23 800mVp-p
0.2V/20.0μ sec.cm
PLAY



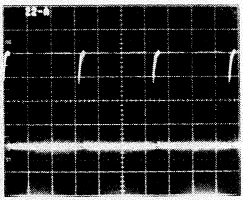
21-A IC203-26 230mVp-p
50mV/20.0μ sec.cm
REC



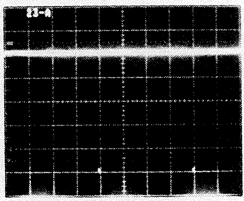
21-B IC203-26 190mVp-p
50mV/20.0μ sec.cm
PLAY



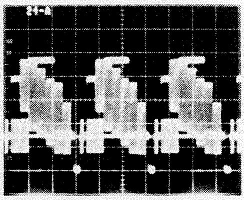
22-A IC203-32 4.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



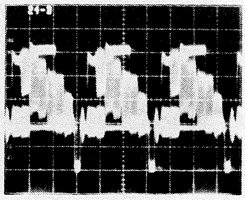
23-A IC204-8 5.1Vp-p
1V/5.0msec.cm
REC/PLAY



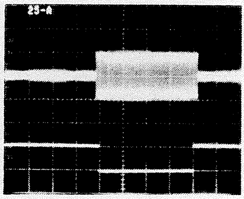
24-A IC204-12 940mVp-p
0.2V/20.0μ sec.cm
REC



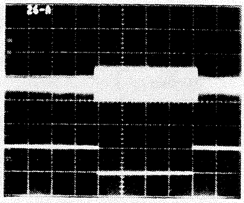
24-B IC204-12 1.0Vp-p
0.2V/20.0μ sec.cm
PLAY



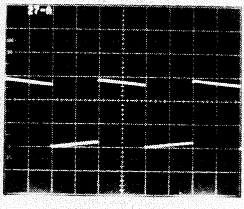
25-A TP201 200mVp-p
0.1V/5.0msec.cm
REC



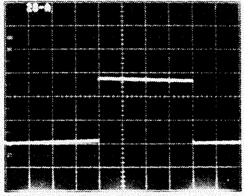
26-A TP202 70mVp-p
50mV/5.0msec.cm
REC



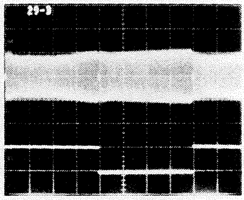
27-A TP204 5.8Vp-p
2V/20.0msec.cm
REC/PLAY



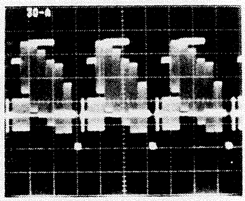
28-A TP205 5.5Vp-p
2V/5.0msec.cm
REC/PLAY



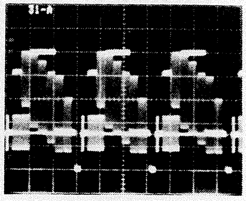
29-B TP206 200mVp-p
0.1V/5.0msec.cm
PLAY



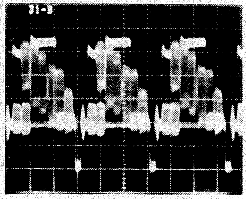
30-A TP208 920mVp-p
0.2V/20.0μ sec.cm
REC/PLAY



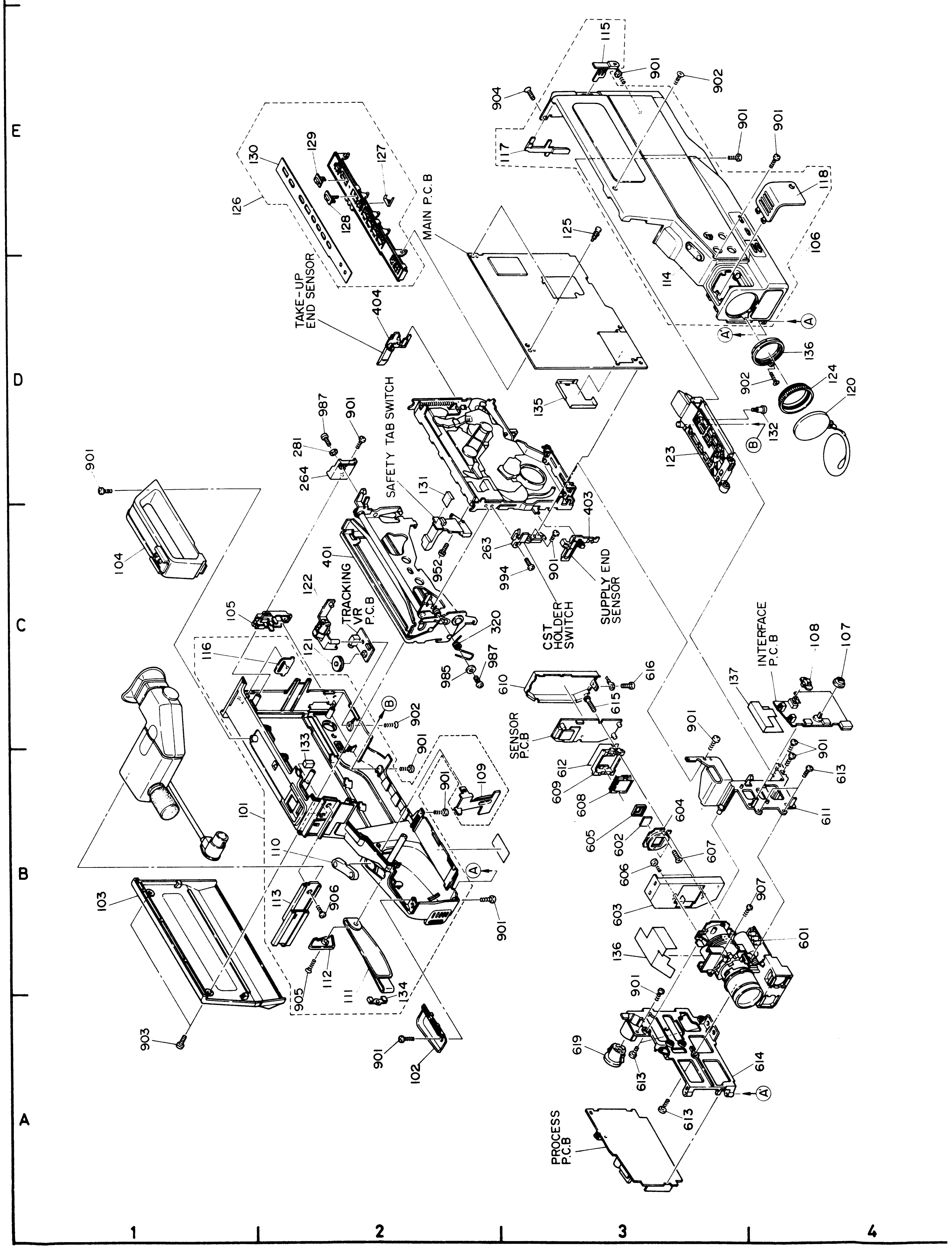
31-A TP209 1.0Vp-p
0.2V/20.0μ sec.cm
REC



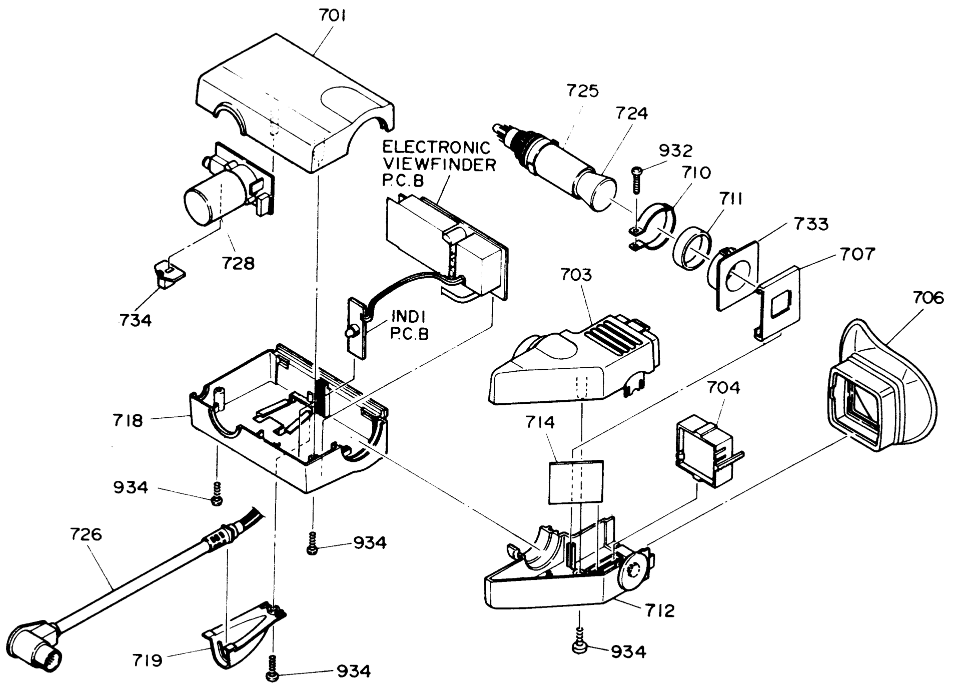
31-B TP209 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



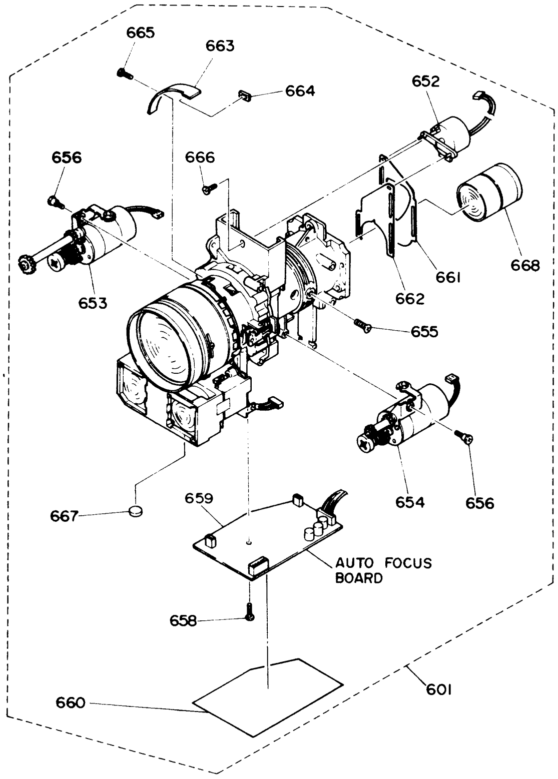
CABINET SECTION
GEHÄUSEABSCHNITT


E
D
C
B
A
1
2
3
4
115
901
902
904
901
901
117
118
106
114
Ⓐ
Ⓐ
136
902
124
120
132
Ⓑ
123
125
MAIN P.C.B
130
129
127
126
128
TAKE-UP END SENSOR
404
135
987
901
281
264
SAFETY TAB SWITCH
131
263
403
994
901
CST HOLDER SWITCH
SUPPLY END SENSOR
901
104
401
952
122
TRACKING VR P.C.B
105
121
320
987
985
116
Ⓑ
902
133
901
109
901
101
110
Ⓐ
113
906
901
112
905
111
134
103
903
901
102
610
616
615
SENSOR P.C.B
612
609
608
605
602
604
607
606
603
136
601
907
901
619
613
614
Ⓐ
613
PROCESS P.C.B
137
INTERFACE P.C.B
108
107
901
901
613
611

ELECTRONIC VIEWFINDER (EVF) SECTION
ELEKTRONISCHER SUCHER-ABSCHNITT


701
725
724
932
710
711
733
707
706
ELECTRONIC VIEWFINDER P.C.B
728
734
INDI P.C.B
703
718
714
704
934
726
934
712
719
934
934

LENS SECTION
OBJEKTIV-ABSCHNITT


665
663
664
652
656
666
668
661
662
653
655
667
659
654
656
AUTO FOCUS BOARD
658
601
660

LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks (S , H).

Lubricants shown in the diagram are as follows.

Ⓢ Sonic slider oil (#1600)

Ⓗ Hitazol (MO-138)

SCHMIERUNG

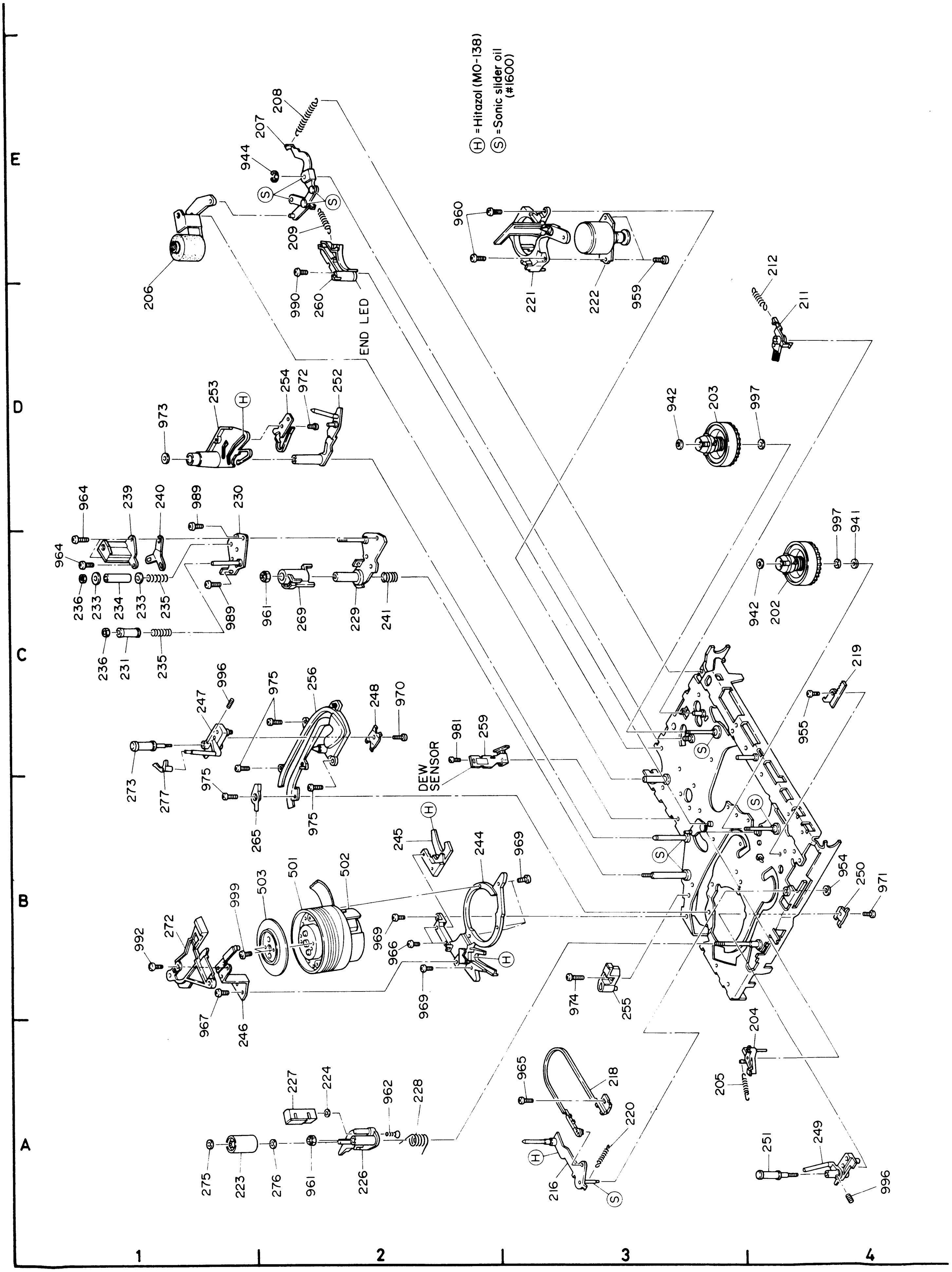
Die Schmierpunkte sind in den Explosionszeichnungen durch Symbole (S , H) gekennzeichnet.

Die im Diagramm gezeigten Schmierpunkte sind mit folgenden Schmiermittel zu schmieren.

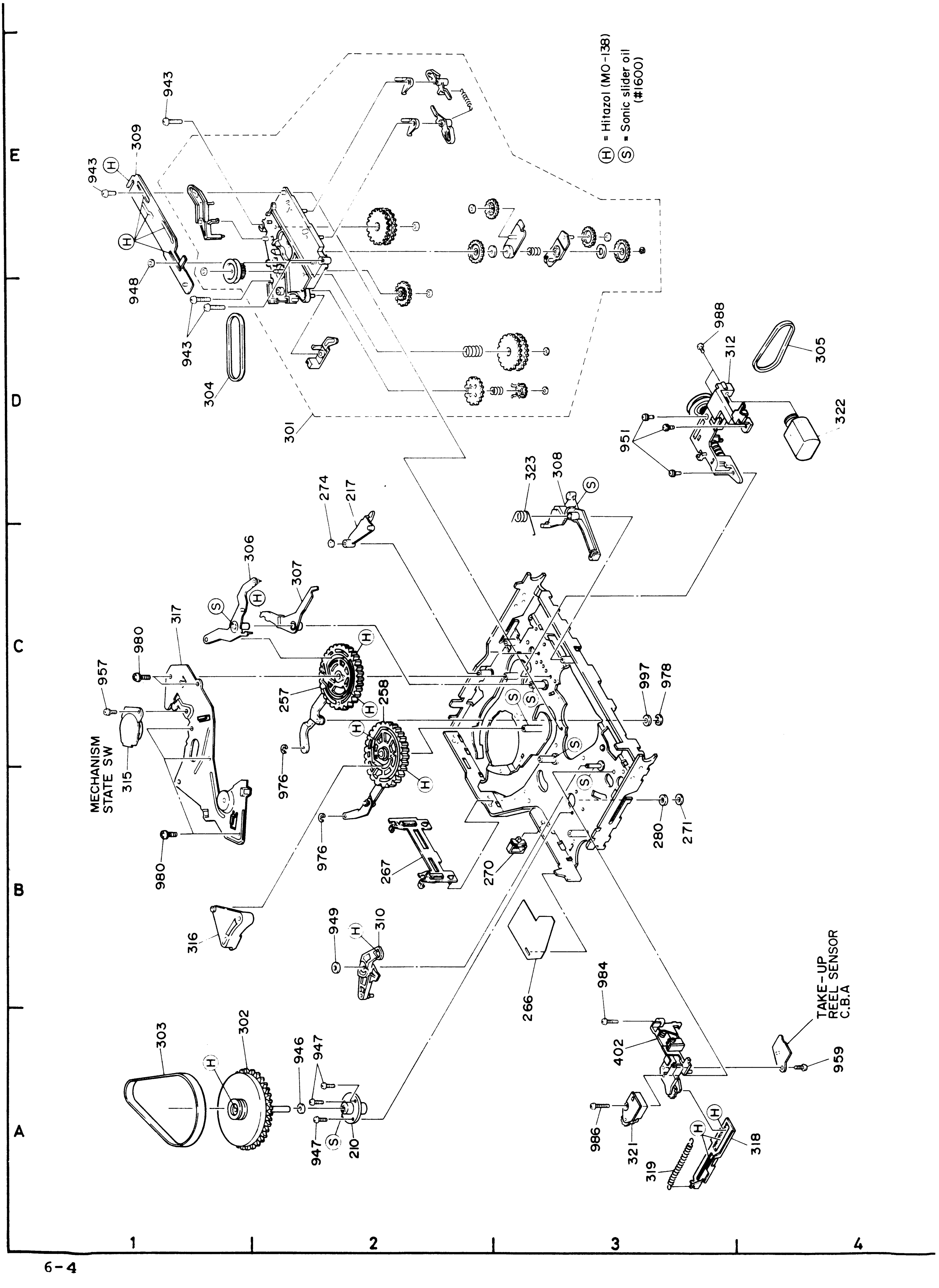
Ⓢ Sonic-Gleitöl (Nr. 1600)

Ⓗ Hitazol (MO-138)

CHASSIS (UPPER) SECTION
CHASSIS-ABSCHNITT (OBEN)


H =Hitazol (MO-138)
S =Sonic slider oil (#1600)
E
D
C
B
A
1
2
3
4
208
207
944
S
S
206
209
990
260
END LED
960
959
221
222
212
211
973
253
H
254
972
252
942
203
997
964
239
240
989
230
964
236
233
234
233
235
989
961
269
229
241
997
941
942
202
236
231
235
996
247
975
256
248
970
273
277
975
265
975
981
259
DEW SENSOR
S
S
S
955
219
H
245
244
969
503
501
502
999
272
992
969
966
H
969
967
246
954
250
971
974
255
204
205
227
224
962
228
965
218
220
275
223
276
961
226
H
216
S
251
249
996

CHASSIS (LOWER) SECTION
CHASSIS-ABSCHNITT (UNTER)


H = Hitazol (MO-138)
S = Sonic slider oil (#1600)
E
D
C
B
A
1
2
3
4
943
309
H
943
H
948
943
304
301
988
312
305
322
951
323
308
S
274
217
306
307
S
H
317
980
957
H
257
258
H
H
S
S
S
S
997
978
MECHANISM STATE SW
315
976
976
980
H
267
270
280
271
316
949
H
310
266
984
TAKE-UP REEL SENSOR C.B.A
303
H
302
946
947
947
S
210
402
959
986
321
319
H
H
318

KAPITEL 7

REPLACEMENT PARTS LIST STÜCKLISTE

SYMBOL-NO	P-NO	DISCRIPTION
MECHANISM SECTION		
101	6015821	CASE, SIDE(R) (VM-1200E)
101	6015822	CASE, SIDE(R) (VM-1280E)
102	6176907	LID, GRIP
103	6015831	LID, CASSETTE (VM-1200E)
103	6015833	LID, CASSETTE (VM-1280E)
104	6336031	HANDLE ASSY
105	6889088	SPRING
106	6015811	CASE, SIDE(L) (VM-1200E)
106	6015813	CASE, SIDE(L) (VM-1280E)
107	6077864	KNOB (IRIS)
108	6077852	KNOB (SLIDE)
109	6088199	BUTTON, START
110	6088203	BUTTON, T/W
111	6335819	STRAP, HAND
112	6029053	COVER, STRAP
113	6438113	SHOE, EVF
114	6088185	BUTTON, PF
115	6086233	BUTTON-RELEASE
116	7367884	STRAP PLATE
117	6889299	LEVER, LOCK
118	6015201	COVER, LENS
120	6232032	CAP
121	6076502	KNOB
122	6801851	HOLDER, JACK
123	6895994	FRAME, BOTTOM
124	6013641	HOOD ASSY
125	6714215	NYLON RIVET
126	6073091	FRAME, BUTTON
127	6526242	SPRING
128	6078293	KNOB, POWER
129	6078301	KNOB
130	6463781	SHEET
131	7700952	SPACER
132	7784371	SCREW
133	6561681	SPACER
134	6438031	HOLDER, CAP
135	7494061	PLATE, SHIELD
136	7703112	SPACER
137	7703102	SPACER
202	6894477	REEL TABEL SUPPLY
203	6887717	TAKE-UP REEL TABLE
204	6888263	SUB BRAKE
205	6544711	SPRING
206	6384225	ARM, P-ROLLER
207	7392883	PRESSURE ROLLER LINK
208	6544725	SPRING
209	6544762	SPRING
210	6979807	HOLDER, FLYWHEEL
211	6888933	SUB BRAKE
212	6544981	SPRING
216	7411776	ARM, TENSION
217	6975532	ARM, SETTING OFF
218	7368001	TENSION BAND
219	7398371	HOLDER
220	6544993	SPRING
221	6894674	HOLDER
222	5578435	MOTOR, CAPSTAN
223	6343963	ROLLER
224	7771442	WASHER
226	6805073	ARM
227	5447761	FEEL ERASE HEAD
228	6551043	SPRING
229	7393018	ARM
230	7392986	PLATE
231	4506001	GUIDE ROLLER
233	4504011	FLANGE
234	4504463	SHAFT
235	6522432	SPRING
236	7785621	NUT
239	5443402	HEAD-AUDIO CONTROL
240	6539041	HEAD SPRING
241	6522443	SPRING
244	6975504	BASE, CYLINDER
245	6974861	CACHER
246	5790985	BRUSH
247	6911371	BASE, GUIDE ROLLER
248	7392783	PLATE
249	6975518	GUIDE ROLLER BASE(IN
250	7394151	PLATE
251	4503408	GUIDE ROLLER
252	6976305	ARM
253	6888802	ARM
254	6539053	SPRING
255	6893882	STOPPER
256	6894662	RAIL
257	7411663	LOADING LINK (IN)
258	7411673	LOADING LINK (OUT)
259	0173042	DEW SENSOR
260	6888984	HOLDER-LED
263	6900131	MACHA HOLDER (S)
264	6895772	HOLDER
265	6526041	SPRING
266	7700438	COVER, BELT
267	6900301	HINGE
269	6894752	HOLDER-WIRE
270	6876484	CRIP
271	6890221	OIL SHEEL
272	6805101	PLATE
273	4503406	GUIDE ROLLER
274	7786119	POLYESTER WASHER
275	7787575	POLYSLIDER WASHER
276	7778855	POLYSLIDER WASHER
277	6805162	CAP
280	7599733	FLYWHEEL HOLDER
281	7789951	WASHER
301	7031878	GEAR, BLOCK
302	6375093	FLYWHEEL
303	6358017	BELT
304	6356445	BELT
305	6356472	BELT
306	7411752	ARM
307	6894721	CAM GEAR ARM
308	6896453	ARM, OPERATION
309	7393058	SLIDER
310	6894382	PR ARM ASSEMBLY
312	6434823	GEAR
315	5612642	SWITCH
316	6888554	ARM, OPERATION
317	7416511	GEAR PLATE
318	7411983	BRACKET, SLIDER
319	6550942	SPRING
320	6544783	SPRING
321	6344633	DUMPER
322	5578754	MOTOR, LOADING
323	6551131	SPRING
401	7411815	CASSETTE HOLDER ASSY
402	6895517	HOLDER, LOCK
403	6894741	HOLDER

SYMBOL-NO	P-NO	DISCRIPTION
404	6894731	HOLDER-END SENSOR
501	5436093	CYLINDER, UPPER
502	5457992	LOWER CYLINDER
503	5457981	DUMPER CYLINDER
601	6957754	LENS, ZOOM
602	5781771	FILTER
603	7483514	CASE, SHIELD
604	6899622	COVER-SENSOR
605	6592924	RUBBER
606	8691306	BT SCREW 2.6MM
607	7784011	SCREW, 2X6
608	5318101	IC HE98247 MOS IMAGE DEVICE
609	6976543	PLATE, SENSOR
610	7483977	PLATE, SHIELD
611	6176821	LENS FRAME B
612	7701501	SHEET
613	8691106	SCREW (2X6)
614	6176831	LENS FRAME A
615	8612114	SCREW (2X14)
616	8741104	SCREW (2X4)
619	5884866	CONNECTOR-EVF
652	6954016	METER, IG
653	6954005	MOTOR, AF
654	6954009	MOTOR, ZOOM
657	6954004	SCREW(1.7X4)
659	6954008	PWB ASSY AUTO FOCUS
660	6954007	SHEET, INSULATION
661	6954013	BLIND, IG METER(A)
662	6954012	BLIND, IG METER(B)
663	6954001	STOPPER
664	6954002	RUBBER
665	6954003	SCREW(2X4)
667	6954006	CAP
668	6954015	LENS, ZOOM(SUB ASSY)
701	6013451	CASE, UPPER
703	6900261	UPPER NECK
704	6950641	LENS ASSY
706	6014322	HOLDER
707	6800871	COVER, CRT
710	7415752	BRACKET, CRT
711	6592974	RUBBER
712	6438123	CASE, BOTTOM NECK
714	6693123	MIRROR
718	6013441	CASE, BOTTOM
719	6900251	BOTTOM PIECE
724	5312003	PICTURE TUBE
725	5242022	DEFLECTION YOKE
726	5387001	EVF CABLE
728	5420652	MICROPHONE
733	6800861	HOLDER, CRT
734	6079411	KNOB, WIND SWICH
901	8699308	SCREW (2.6X8) BLACK
902	7783614	SCREW (2.6X12)
903	7784782	SCREW (3X4)
904	0724306	SCREW (2.6X6)
905	7783611	SCREW
906	8699308	SCREW (2.6X8) BLACK
907	8699108	SCREW (2X8)
932	8711110	PAN HEAD SCREW - 2MMD X 10MM
934	8699106	SCREW
941	7787535	WASHER
942	7778859	POLYSLIDER WASHER
943	8741108	SCREW (2X8)
944	7774943	E RING
946	7778848	POLYSLIDER WASHER
947	8741105	SCREW (2X5)
948	7778859	POLYSLIDER WASHER
949	7787615	POLY-SLIDER WASHER
951	8650105	SCREW (2X5)
952	8691108	SCREW (2X8)
954	7788901	POLY-SLIDER WASHER
955	8741103	SCREW(2X3B)
957	8741103	SCREW(2X3B)
959	8691105	SCREW
960	8741105	SCREW (2X5)
961	7785183	NUT
962	8741105	SCREW (2X5)
964	7780901	SCREW (1.7X4)
965	8741105	SCREW (2X5)
966	8650108	SCREW (2X8)
967	8741106	SCREW (2X6)
969	8741106	SCREW (2X6)
970	7780905	SCREW (1.7X6)
971	7780905	SCREW (1.7X6)
972	8691106	SCREW (2X6)
973	7787615	POLY-SLIDER WASHER
974	8741106	SCREW (2X6)
975	8741104	SCREW (2X4)
976	7774943	E RING
978	7774943	E RING
980	8650105	SCREW (2X5)
981	8741103	SCREW (2X3B)
984	8741108	SCREW (2X8)
985	7789931	WASHER
986	8741114	SCREW (2X14)
987	8741109	SCREW
988	7780902	SCREW (1.7X2)
989	7780902	SCREW (1.7X2)
990	8741104	SCREW (2X4)
992	8741106	SCREW (2X6)
994	7784371	SCREW
996	7782611	SCREW
997	7778855	POLYSLIDER WASHER
999	8711106	SCREW (2X6)

VTR SECTION

SYMBOL-NO	P-NO	DISCRIPTION
C 201	0201065	CERAMIC CHIP 0.22UF+-10% 25V
C 203	0256685	ELECTROLYTIC 1UF 50V
C 205	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 206	0201069	CERAMIC CHIP 01.UF+80-20% 25V
C 207	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 208	0201001	CERAMIC CHIP 22PF+-5% 50V
C 209	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 210	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 211	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 212	0201001	CERAMIC CHIP 22PF+-5% 50V
C 213	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 214	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 215	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 216	0201001	CERAMIC CHIP 22PF+-5% 50V
C 217	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 218	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 219	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 220	0201001	CERAMIC CHIP 22PF+-5% 50V
C 221	0256685	ELECTROLYTIC 1UF 50V
C 222	0256841	ELECTROLYTIC 4.7UF 25V
C 223	0201028	CERAMIC CHIP 56PF+-5% 50V
C 224	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 225	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 226	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 227	0201065	CERAMIC CHIP 0.022UF+-10% 25V

SYMBOL-NO	P-NO	DISCRIPTION
C 228	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 232	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 233	0256159	ELECTROLYTIC 100UF 6.3V
C 234	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 235	0256155	ELECTROLYTIC 10UF 16V
C 236	0201036	CERAMIC CHIP 270PF+-5% 50V
C 237	0201022	CERAMIC CHIP 15PF+-5% 50V
C 238	0256154	ELECTROLYTIC 4.7UF 25V
C 241	0256154	ELECTROLYTIC 4.7UF 25V
C 242	0201031	CERAMIC CHIP 100PF+-5% 50V
C 244	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 246	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 247	0201035	CERAMIC CHIP 220PF+-5% 50V
C 248	0201027	CERAMIC CHIP 47PF+-5% 50V
C 249	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 251	0201028	CERAMIC CHIP 56PF+-5% 50V
C 252	0256788	ELECTROLYTIC 1000UF 6.3V
C 253	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 255	0256154	ELECTROLYTIC 4.7UF 25V
C 256	0256155	ELECTROLYTIC 10UF 16V
C 257	0256155	ELECTROLYTIC 10UF 16V
C 259	0256155	ELECTROLYTIC 10UF 16V
C 260	0201100	CERAMIC CHIP 0.033UF+-10% 50V
C 262	0256681	ELECTROLYTIC 0.1UF 50V
C 263	0201028	CERAMIC CHIP 56PFF+-5% 50V
C 264	0201034	CERAMIC CHIP 180PF+-5% 50V
C 265	0201035	CERAMIC CHIP 220PFF+-5% 50V
C 266	0256155	ELECTROLYTIC 10UF 16V
C 267	0256155	ELECTROLYTIC 10UF 16V
C 268	0201041	CERAMIC CHIP 680PF+-5% 50V
C 269	0201001	CERAMIC CHIP 22PF+-5% 50V
C 270	0256682	ELECTROLYTIC 0.22UF 50V
C 271	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 272	0256170	ELECTROLYTIC 100UF 10V
C 273	0201029	CERAMIC CHIP 68PFF+-5% 50V
C 275	0256159	ELECTROLYTIC 100UF 6.3V
C 279	0201025	CERAMIC CHIP 33PF+-5% 50V
C 284	0256856	ELECTROLYTIC 330UF 6.3V
C 285	0256154	ELECTROLYTIC 4.7UF 25V
C 286	0201031	CERAMIC CHIP 100PF+-5% 50V
C 287	0256156	ELECTROLYTIC 22UF 16V
C 289	0201037	CERAMIC CHIP 330PF+-5% 50V
C 290	0201023	CERAMIC CHIP 18PF+-5% 50V
C 291	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 294	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 295	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 296	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 297	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 298	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 299	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 301	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 302	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 303	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 304	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 306	0201028	CERAMIC CHIP 56PF+-5% 50V
C 401	0201003	CERAMIC CHIP 0.001UF+-20% 50V
C 402	0256711	ELECTROLYTIC 47UF 6.3V
C 403	0256834	ELECTROLYTIC 10UF 16V
C 405	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 406	0256705	ELECTROLYTIC 22UF 6.3V
C 410	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 411	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 412	0256154	ELECTROLYTIC 4.7UF 25V
C 415	0256154	ELECTROLYTIC 4.7UF 25V
C 417	0201100	CERAMIC CHIP 0.033UF+-10% 50V

SYMBOL-NO	P-NO	DISCRIPTION
C 419	0256159	ELECTROLYTIC 100UF 6.3V
C 420	0256159	ELECTROLYTIC 100UF 6.3V
C 421	0209995	CERAMIC CHIP 1.0UF+80-20% 16V
C 422	0256159	ELECTROLYTIC 100UF 6.3V
C 424	0201037	CERAMIC CHIP 330PF+-5% 50V
C 428	0201035	CERAMIC CHIP 220PF+-5% 50V
C 429	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 431	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 432	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 434	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 435	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 581	0256158	ELECTROLYTIC 47UF 16V
C 582	0256163	ELECTROLYTIC 100UF 16V
C 583	0256159	ELECTROLYTIC 100UF 6.3V
C 584	0207187	CERAMIC CHIP 47UF 6.3V
C 585	0256163	ELECTROLYTIC 100UF 16V
C 586	0256163	ELECTROLYTIC 100UF 16V
C 588	0201042	CERAMIC CHIP 820PF+-5% 50V
C 589	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 590	0256158	ELECTROLYTIC 47UF 16V
C 591	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 603	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 604	0256690	ELECTROLYTIC 10UF 16V
C 606	0201035	CERAMIC CHIP 220PF+-5% 50V
C 607	0201031	CERAMIC CHIP 100PF+-5% 50V
C 608	0256170	ELECTROLYTIC 100UF 10V
C 611	0201065	CERAMIC CHIP 0.022PF+-10% 25V
C 612	0201001	CERAMIC CHIP 22PF+-5% 50V
C 613	0256708	CERAMIC CHIP 47UF 6.3V
C 615	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 617	0201031	CERAMIC CHIP 100PF+-5% 50V
C 619	0201003	CERAMIC CHIP 0.001UF+-20% 50V
C 623	0201039	CERAMIC CHIP 470PF+-5% 50V
C 624	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 625	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 628	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 629	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 632	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 633	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 635	0201003	CERAMIC CHIP 0.001UF+-20% 50V
C 636	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 637	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 638	0201039	CERAMIC CHIP 470PF+-5% 50V
C 639	0256837	ELECTROLYTIC 3.3UF 25V
C 646	0201003	CERAMIC CHIP 0.001UF+-20% 50V
C 647	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 650	0256472	CAPACITOR 2.2UF 20V ELECTROLYTIC TANTALUM
C 651	0256472	CAPACITOR 2.2UF 20V ELECTROLYTIC TANTALUM
C 652	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 653	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 654	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 655	0201031	CERAMIC CHIP 100PF+-5% 50V
C 656	0201039	CERAMIC CHIP 470PF+-5% 50V
C 657	0201039	CERAMIC CHIP 470PF+-5% 50V
C 658	0201039	CERAMIC CHIP 470PF+-5% 50V
C 660	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 661	0256156	ELECTROLYTIC 22UF 16V
C 690	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 905	0256790	ELECTROLYTIC 220UF 6.3V
C 906	0256869	ELECTROLYTIC 47UF 16V
C 909	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 910	0256489	ELECTROLYTIC 0.047F 5.5V
C 911	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 912	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 913	0201065	CERAMIC CHIP 0.022UF+-10% 25V

SYMBOL-NO	P-NO	DISCRIPTION
C 920	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 945	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 971	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 973	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
R 201	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 202	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 203	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 204	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 205	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 206	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 207	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 208	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 209	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 210	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 211	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 212	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 213	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 214	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 215	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 216	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 217	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 218	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 219	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 220	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 221	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 222	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 223	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 224	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R 225	0104116	CHIP RESISTOR 39KOHM+-5% 0.1W
R 226	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 227	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 228	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 229	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 230	0104117	CHIP RESISTOR 82KOHM+-5% 0.1W
R 231	0104115	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 232	0104113	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 233	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 234	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 235	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 236	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 237	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 238	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 239	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 240	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 241	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 242	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 243	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 244	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 245	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 246	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 247	0103841	CHIP RESISTOR 680KOHM+-5% 0.1W
R 248	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 249	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 250	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 251	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 252	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 253	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 254	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 255	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 256	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 257	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 258	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 259	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 260	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 261	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DISCRIPTION
R 262	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 263	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 264	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 265	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 266	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 267	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 269	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 270	0104118	CHIP RESISTOR 22KOHM 1/10W
R 280	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 281	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 282	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 283	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 284	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 286	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 287	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 291	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 294	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 295	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 296	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 297	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 298	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 299	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 300	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 301	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 302	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 303	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 304	0103880	CHIP RESISTOR 1.5MOHM+-10% 0.1W
R 401	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 402	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 403	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 404	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 405	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 406	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 407	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 408	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 409	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 410	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 411	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R 412	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 413	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 414	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 415	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R 416	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 417	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 418	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 419	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 420	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 422	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 423	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 424	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R 425	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 426	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 427	0170473	CHIP RESISTOR 4.7OHM+-5% 1/4W
R 428	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 430	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 431	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 432	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 443	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 444	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 583	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 584	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 585	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 586	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 601	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 602	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DISCRIPTION
R 603	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 604	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 605	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 606	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 607	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 608	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 609	0103863	CHIP.RESISTOR 47KOHM+-5% 0.1W
R 610	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 611	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 612	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 613	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 614	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 615	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 616	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 617	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 620	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 621	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 622	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 623	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 624	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 625	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 626	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 627	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 628	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 629	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 630	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 631	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 632	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 633	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 634	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 635	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 636	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 637	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 638	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 639	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 640	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 642	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 643	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 644	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 645	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 646	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 647	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 650	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 651	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 655	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 656	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 659	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 660	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 661	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 665	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 666	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 667	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 670	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 671	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 672	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 673	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 674	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 675	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 676	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 677	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 678	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 679	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 680	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 681	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 682	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DISCRIPTION
R 683	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 684	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 685	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 686	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 687	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 688	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 690	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 691	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 692	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 693	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 694	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 695	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 696	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 697	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 698	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 699	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 901	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 902	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 903	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 904	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 905	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 906	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 907	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 908	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 909	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 910	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 911	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 912	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 913	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 914	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 915	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 916	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 917	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 918	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 919	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 920	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 921	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 922	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 923	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 924	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 925	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 926	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 930	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 931	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 932	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 933	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 934	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 935	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 936	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 937	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 938	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 939	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 940	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 941	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 942	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 944	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 951	0103851	CHIP RESISTOR4.7KOHM+-5% 0.1W
R 952	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 961	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 962	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 963	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 964	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 965	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 966	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 967	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DISCRIPTION
R 968	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 969	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 970	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 971	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 972	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 973	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 974	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 975	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 976	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R 977	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 978	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 980	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 985	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 986	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 987	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 989	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 990	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 991	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 992	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 993	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 994	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R 995	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 996	0103893	CHIP RESISTOR 75OHM+-5% 1/8W
R 997	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 998	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 999	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
RT 201	5007434	SEMI VARIABLE 4.7KOHM
RT 202	5007433	SEMI VARIABLE 2.2KOHM
RT 401	5007436	SEMI VARIABLE 22KOHM
RT 402	5007438	RESISTOR SEMI VARIABLE 100K OHM
RT 601	5007453	RESISTOR SEMI VARIABLE 470K OHM
RT 602	5007452	RESISTOR SEMI VARIABLE 220K OHM
RT 901	5007445	SEMI VARIABLE 2.2KOHM
RT 902	5007446	SEMI VARIABLE 4.7KOHM
RV 601	5005584	RESISTOR VARIABLE 500K OHM
D 125	5380931	LED GL-450
D 201	5331053	DIODE 1K60RLF-SL GERMANIUM 80MHZ 50MW
D 202	5328303	DIODE MA152WK (MU)
D 203	5328303	DIODE MA152WK (MU)
D 204	5328303	DIODE MA152WK (MU)
D 205	5328303	DIODE MA152WK (MU)
D 206	5328303	DIODE MA152WK (MU)
D 207	5328303	DIODE MA152WK (MU)
D 208	5328303	DIODE MA152WK (MU)
D 401	5328302	DIODE MA151WA(MN)
D 581	5332542	DIODE A81-04F
D 582	5332542	DIODE A81-04F
D 583	5332542	DIODE A81-04F
D 584	5328303	DIODE MA152WK (MU)
D 601	5328303	DIODE MA152WK (MU)
D 602	5328303	DIODE MA152WK (MU)
D 603	5328303	DIODE MA152WK (MU)
D 604	5328303	DIODE MA152WK (MU)
D 607	5331671	DIODE DS135D
D 608	5331671	DIODE DS135D
D 609	5331671	DIODE DS135D
D 613	5328303	DIODE MA152WK (MU)
D 614	5328381	DIODE MA153(MC)
D 621	5328303	DIODE MA152WK (MU)
D 630	5328381	DIODE MA153(MC)
D 901	5381001	LED SLR-34URC5
D 902	5331592	DIODE 1SS133
D 905	5328303	DIODE MA152WK (MU)
D 907	5328303	DIODE MA152WK(MU)
D 909	5328303	DIODE MA152WK(MU)

SYMBOL-NO	P-NO	DISCRIPTION
D 910	5328303	DIODE MA152WK(MU)
D 911	5328303	DIODE MA152WK(MU)
D 912	5328303	DIODE MA152WK(MU)
D 914	5328302	DIODE MA152WA(MN)
D 915	5328303	DIODE MA152WK(MU)
D 916	5328303	DIODE MA152WK(MU)
D 930	5328381	DIODE MA153(MC)
D 970	5332542	DIODE A81-04F
D 990	5328303	DIODE MA152WK(MU)
IC 201	5367551	IC HA11876NT
IC 202	5383113	IC HT4717B
IC 203	5383122	IC HT4529A
IC 204	5300532	IC LVA513A
IC 401	5363322	IC BA5114LS
IC 402	5364201	IC UPC1513HA
IC 581	5384731	MODULE HT4673
IC 601	5303011	IC HD49701A
IC 604	5369911	IC M54548L
IC 605	5366371	IC HA13434
IC 606	5366601	IC BA6305
IC 607	1388071	MODULE BX7581F
IC 901	5306524	IC HD614042FH92
IC 903	5369171	IC M54543L
IC 904	5368711	IC MB89009P-102
IC 905	5364602	IC M5278L56
IC 906	5366501	IC AN6541
IC 909	1388081	MODULE BX7580F
Q 119	5382141	PHOTO TRANSISTOR NJL5161K
Q 123	5380131	TRANSISTOR PH101 PHOTO
Q 124	5380131	TRANSISTOR PH101 PHOTO
Q 201	5328971	TRANSISTOR 2SC2412KBRST
Q 202	5328792	TRANSISTOR DTA124K(15)
Q 203	5328793	TRANSISTOR DTC144K-26
Q 204	5328971	TRANSISTOR 2SC2412KBRST
Q 205	5328335	TRANSISTOR 2SB709A-RS-T
Q 206	5328971	TRANSISTOR 2SC2412IBRST
Q 207	5328971	TRANSISTOR 2SC2412KBRST
Q 208	5328335	TRANSISTOR 2SB709A-RS-T
Q 211	5328971	TRANSISTOR 2SC2412KBRST
Q 212	5328971	TRANSISTOR 2SC2412KBRST
Q 213	5328335	TRANSISTOR 2SB709A-RS-T
Q 214	5328792	TRANSISTOR DTA124K(15)
Q 215	5328793	TRANSISTOR DTC144K-26
Q 216	5328335	TRANSISTOR 2SB709A-RS-T
Q 217	5328793	TRANSISTOR DTC144K-26
Q 218	5328335	TRANSISTOR 2SB709A-RS-T
Q 219	5328793	TRANSISTOR DTC144K-26
Q 220	5328971	TRANSISTOR 2SC2412KBRST
Q 221	5328971	TRANSISTOR 2SC2412KBRST
Q 222	5328971	TRANSISTOR 2SC2412KBRST
Q 226	5328793	TRANSISTOR DTC144K-26
Q 227	5328971	TRANSISTOR 2SC2412KBRST
Q 228	5328971	TRANSISTOR 2SC2412KBRST
Q 229	5328792	TRANSISTOR DTA124K(15)
Q 230	5328971	TRANSISTOR 2SC2412KBRST
Q 404	5328351	TRANSISTOR 2SD602R(WR)
Q 581	5324083	TRANSISTOR 2SB962
Q 582	5324501	TRANSISTOR 2SB1181
Q 583	5324083	TRANSISTOR 2SB962
Q 586	5328971	TRANSISTOR 2SC2412KBRST
Q 587	5328335	TRANSISTOR 2SB709A-RS-T
Q 601	5328971	TRANSISTOR 2SC2412KBRST
Q 602	5328335	TRANSISTOR 2SB709A-RS-T
Q 603	5328793	TRANSISTOR DTC144K-26
Q 604	5328793	TRANSISTOR DTC144K-26

SYMBOL-NO	P-NO	DISCRIPTION
Q 605	5328971	TRANSISTOR 2SC2412KBRST
Q 901	5328971	TRANSISTOR 2SC2412KBRST
Q 902	5328971	TRANSISTOR 2SC2412KBRST
Q 903	5328971	TRANSISTOR 2SC2412KBRST
Q 904	5328335	TRANSISTOR 2SB709A-RT-T
Q 905	5328335	TRANSISTOR 2SB709A-RS-T
Q 906	5328335	TRANSISTOR 2SB709A-RS-T
Q 907	5328971	TRANSISTOR 2SC2412KBRST
Q 909	5328793	TRANSISTOR DTC144K-26
Q 910	5328335	TRANSISTOR 2SB709A-RS-T
Q 911	5328793	TRANSISTOR DTC144K-26
Q 912	5328792	TRANSISTOR DTA124K(15)
Q 913	5328335	TRANSISTOR 2SB709A-RS-T
Q 914	5328971	TRANSISTOR 2SC2412KBRST
ZD 401	5331586	DIODE RD3.6E-B2
ZD 581	5332635	DIODE RD4R7JB2
ZD 601	5330395	DIODE HZ6A3 SI ZENNER 1MHZ 0.4W
ZD 901	5330718	DIODE HZ-9A-2
ZD 902	5332091	DIODE RD3.6E-B2HF
ZD 903	5330717	DIODE HZ-7B-3
ZD 904	5330717	DIODE HZ-7B-3
ZD 905	5330717	DIODE HZ-7B-3
ZD 906	5330717	DIODE HZ-7B-3
T 401	5261411	COIL,OSC'
L 201	5159207	CHOKE COIL 100UH
L 203	5159207	CHOKE COIL 100UH
L 205	5159207	CHOKE COIL 100UH
L 207	5159207	CHOKE COIL 100UH
L 209	5159207	CHOKE COIL 100UH
L 211	5159215	CHOKE COIL 390UH
L 212	5159207	CHOKE COIL 100UH
L 213	5159207	CHOKE COIL 100UH
L 214	5159197	CHOKE COIL 18UH
L 216	5159207	CHOKE COIL 100UH
L 217	5159201	CHOKE COIL 33UH
L 218	5152972	CHOKE COIL 12MH+-5%
L 219	5152341	CHOKE COIL 180UH
L 220	5159195	CHOKE COIL 12UH
L 221	5159206	CHOKE COIL 82UH
L 222	5159194	CHOKE COIL 10UH
L 223	5159205	CHOKE COIL 68UH
L 225	5159207	CHOKE COIL 100UH
L 226	5159207	CHOKE COIL 100UH
L 227	5159212	CHOKE COIL 220UH
L 228	5159202	CHOKE COIL 39UH
L 229	5159199	CHOKE COIL 27UH
L 401	5152815	CHOKE COIL 22MH+-5%
L 402	5152971	CHOKE COIL 5.6MH
L 403	5152346	CHOKE COIL 470UH
L 581	5153141	CHOKE COIL 50UH
L 582	5153142	CHOKE COIL 120UH
L 583	5153143	COIL 22UH
L 584	5152943	CHOKE COIL 390UH
L 585	5152943	CHOKE COIL 390UH
L 586	5153143	COIL 22UH
CP 201	5124133	TRAP COIL
CP 202	5162962	DELAY LINE
CP 203	5162475	BAND PASS FILTER
CP 204	5162755	TRAP COIL
CX 901	5781801	CRYSTAL
DL 201	5785872	DELAY LINE
DL 202	5785385	DELAY LINE
DL 203	5162885	DELAY LINE
F 970	5720177	FUSE 2A 125V
H 970	5722214	FUSE HOLDER

SYMBOL-NO	P-NO	DISCRIPTION
H 971	5722214	FUSE HOLDER
JK 101	5673381	JACK-3.5MMD
JK 970	5672151	DC JACK
QF 581	5721802	IC PROTECTER
RL 901	5641903	RELAY
S 121	5635221	SWITCH
S 122	5605332	SWITCH
S 901	5635291	SWITCH
S 902	5635291	SWITCH
S 903	5635113	SWITCH
S 904	5635113	SWITCH
S 905	5635113	SWITCH
S 906	5635113	SWITCH
S 907	5635113	SWITCH
S 908	5635113	SWITCH
S 909	5635113	SWITCH
S 911	5622811	SLIDE SWI

CAMERA SECTION

SYMBOL-NO	P-NO	DISCRIPTION
C 001	0256381	ELECTROLYTIC 3.3UF 16V
C 002	0256694	ELECTROLYTIC 22UF 6.3V
C 004	0256686	ELECTROLYTIC 2.2UF 35V
C 005	0256392	ELECTROLYTIC 22UF 6.3V
C 006	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 007	0201024	CERAMIC CHIP 27PF+-5% 50V
C 008	0201024	CERAMIC CHIP 27PF+-5% 50V
C 009	0201013	CERAMIC CHIP 3PF+-0.25% 50V
C 010	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 011	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 012	0256835	ELECTROLYTIC 1UF 50V
C 013	0256398	TANTALUM 68UF 6.3V
C 014	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 015	0256392	ELECTROLYTIC 22UF 6.3V
C 016	0256392	ELECTROLYTIC 22UF 6.3V
C 017	0256392	ELECTROLYTIC 22UF 6.3V
C 018	0256392	ELECTROLYTIC 22UF 6.3V
C 019	0256709	ELECTROLYTIC 100UF 6.3V
C 020	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 021	0256689	ELECTROLYTIC 10UF 6.3V
C 022	0256694	ELECTROLYTIC 22UF 6.3V
C 023	0256694	ELECTROLYTIC 22UF 6.3V
C 024	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 025	0201023	CERAMIC CHIP 18PF+-5% 50V
C 026	0201023	CERAMIC CHIP 18PF+-5% 50V
C 027	0201023	CERAMIC CHIP 18PF+-5% 50V
C 028	0201023	CERAMIC CHIP 18PF+-5% 50V
C 029	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 030	0201023	CERAMIC CHIP 18PF+-5% 50V
C 031	0201023	CERAMIC CHIP 18PF+-5% 50V
C 032	0201023	CERAMIC CHIP 18PF+5% 50V
C 033	0201023	CERAMIC CHIP 18PF+5% 50V
C 034	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 035	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 036	0256163	ELECTROLYTIC 100UF 16V
C 037	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 038	0256694	ELECTROLYTIC 22UF 6.3V
C 039	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 040	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 041	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 042	0201023	CERAMIC CHIP 18PF+-50% 50V
C 043	0201023	CERAMIC CHIP 18PF+-50% 50V
C 044	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 045	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 046	0201099	CERAMIC CHIP 0.1UF+80-20% 25V
C 047	0201069	CERAMIC CHIP 0.1UF+80-20% 25V

SYMBOL-NO	P-NO	DISCRIPTION
C 048	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 049	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 050	0201039	CERAMIC CHIP 470PF+-5% 50V
C 051	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 052	0201029	CERAMIC CHIP 68PF+-5% 50V
C 053	0201029	CERAMIC CHIP 68PF+-5% 50V
C 054	0201029	CERAMIC CHIP 68PF+-5% 50V
C 055	0201029	CERAMIC CHIP 68PF+-5% 50V
C 101	0256694	ELECTROLYTIC 22UF 6.3V
C 104	0256762	CAPACITOR 220UF 16V ELECTROLYTIC
C 105	0256685	ELECTROLYTIC 1UF 50V
C 106	0256694	ELECTROLYTIC 22UF 6.3V
C 107	0256690	ELECTROLYTIC 10UF 16V
C 108	0256685	ELECTROLYTIC 1UF 50V
C 109	0256688	ELECTROLYTIC 4.7UF 16V
C 110	0256689	ELECTROLYTIC 10UF 6.3V
C 111	0256694	ELECTROLYTIC 22UF 6.3V
C 112	0256790	ELECTROLYTIC 220UF 6.3V
C 113	0256694	ELECTROLYTIC 22UF 6.3V
C 114	0256692	ELECTROLYTIC 22UF 16V
C 115	0256692	ELECTROLYTIC 22UF 16V
C 116	0256158	ELECTROLYTIC 47UF 16V
C 117	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 118	0256785	ELECTROLYTIC 470UF 16V
C 119	0256783	ELECTROLYTIC 100UF 16V
C 120	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 121	0256782	ELECTROLYTIC 220UF 10V
C 122	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 123	0256687	ELECTROLYTIC 3.3UF 25V
C 124	0201032	CERAMIC CHIP 120PF+-5% 50V
C 125	0256685	ELECTROLYTIC 1UF 50V
C 126	0256835	ELECTROLYTIC 1UF 50V(E,UK ONLY)
C 127	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 401	0201031	CERAMIC CHIP 100PF+-5% 50V
C 402	0201031	CERAMIC CHIP 100PF+-5% 50V
C 403	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 404	0256686	ELECTROLYTIC 2.2UF 35V
C 405	0256692	ELECTROLYTIC 22UF 16V
C 406	0201038	CERAMIC CHIP 390PF+-5% 50V
C 407	0201038	CERAMIC CHIP 390PF+-5% 50V
C 408	0201038	CERAMIC CHIP 390PF+-5% 50V
C 409	0201038	CERAMIC CHIP 390PF+-5% 50V
CT 001	5058541	TRIMMER 35PF
R 002	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 003	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 004	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 005	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 006	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 007	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 008	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 009	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 010	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 011	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 012	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 013	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 014	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 015	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 017	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 019	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 020	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 021	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 024	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 025	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 026	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 028	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 029	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 030	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 031	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 032	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 033	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 034	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 035	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 042	0103828	CHIP RESISTOR 56OHM+-5% 0.1W
R 043	0103828	CHIP RESISTOR 56OHM+-5% 0.1W
R 048	0103828	CHIP RESISTOR 56OHM+-5% 0.1W
R 049	0103828	CHIP RESISTOR 56OHM+-5% 0.1W
R 050	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 051	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 052	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 053	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 054	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 055	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 056	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 057	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 058	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 059	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 060	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 061	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 062	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 071	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 072	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 073	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 074	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 075	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 076	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 077	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 078	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 083	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 084	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 101	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 102	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 103	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 104	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 105	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 106	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 107	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 108	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 109	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 110	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 111	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 112	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 113	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 114	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 115	0103880	CHIP RESISTOR 1.5MOHM+-10% 0.1W
R 116	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 117	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 118	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R 119	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 120	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 121	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 122	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 123	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 124	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 126	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 128	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 133	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 135	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W(E,UK ONLY)
R 401	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R 402	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DISCRIPTION
R 403	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 404	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 405	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 406	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 407	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 408	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 409	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 410	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 412	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 413	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 414	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
RT 101	5007452	RESISTOR SEMI VARIABLE 220KOHM
RT 102	5007715	SEMI VARIABLE 10KOHM
RT 401	5005585	SEMI VARIABLE 5KOHM
D 001	5331031	DIODE 1SV68
D 101	5328321	DIODE MA151K(MH)
D 102	5328321	DIODE MA151K(MH)
D 103	5328381	DIODE MA153(MC)
D 401	5328321	DIODE MA151K(MH)
IC 001	5318101	HE98247 MOS IMAGE DEVICE
IC 002	5387761	MODULE HT5580
VIC 003	5387761	MODULE HT5580
IC 004	1387472	MODULE HES8110A
IC 005	5305042	IC HD62991CA
IC 006	5300581	IC HA118002FP
IC 007	5304292	IC HA118031A
IC 101	5387782	RESISTOR BLOCK R1907A
IC 102	5386981	MODULE HT5589
IC 103	5387642	MODULE HT5613A
IC 104	5387613	MODULE HT5625B
IC 105	5386862	MODULE HT5548A
IC 106	5386844	MODULE HT5557C
IC 107	5387322	MODULE HT5542A
IC 108	1387001	MODULE HES8104
IC 109	5300841	IC NJM2225S
IC 110	5366241	IC LAG624
IC 111	5385561	MODULE HT5317
IC 112	5386411	MODULE HT5319
IC 401	5306322	IC UPD7564G513
Q 001	5328791	TRANSISTOR DTC124K(25)
Q 002	5328192	TRANSISTOR 2SC2462LD
Q 101	5328192	TRANSISTOR 2SC2462LD
Q 102	5328272	TRANSISTOR 2SK160(5)(K)
Q 103	5328791	TRANSISTOR DTC124K(25)
Q 104	5328791	TRANSISTOR DTC124K(25)
Q 105	5328791	TRANSISTOR DTC124K(25)
Q 106	5326222	TRANSISTOR DTC363
Q 107	5328793	TRANSISTOR DTC144K-26
Q 108	5326204	TRANSISTOR FMGI
Q 401	5328192	TRANSISTOR 2SC2462LD
ZD 401	5339213	DIODE RD2.7MB2
ZD 402	5328365	DIODE RD5.1M-B2
ZD 403	5328369	DIODE RD6.8M-B3
ZD 404	5328369	DIODE RD6.8M-B3
L 001	5152607	CHOKE COIL 100UH+-10%
L 101	5152607	CHOKE COIL 100UH+-10%
L 102	5152607	CHOKE COIL 100UH+-10%
L 103	5152612	CHOKE COIL 220UH
L 104	5152962	CHOKE COIL 220UH
L 105	5152962	CHOKE COIL 220UH
L 401	5152349	CHOKE COIL 820UH
X 001	5781931	CRYSTAL
X 401	5781861	CRYSTAL
CP 101	5163761	LC FILTER
QF 101	5721803	IC PROTECTER

SYMBOL-NO	P-NO	DISCRIPTION
RM 101	1387652	RESISTOR BLOCK RM22A
SW 101	5635291	SWITCH
SW 102	5635291	SWITCH
SW 103	5635291	SWITCH
SW 401	5635291	SWITCH
SW 402	5633911	SWITCH
SW 403	5633911	SWITCH
SW 404	5621471	SWITCH
SW 405	5633673	SWITCH (CH)
SW 406	5633911	SWITCH
SW 407	5635291	SWITCH
SW 408	5621471	SWITCH
SW 409	5635291	SWITCH
SW 410	5635291	SWITCH

ERECTRONIC VIEWFINDER SECTION

C 801	0256170	ELECTROLYTIC 100UF 10V
C 802	0256690	ELECTROLYTIC 10UF 16V
C 804	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 805	0256170	ELECTROLYTIC 100UF 10V
C 806	0256782	ELECTROLYTIC 220UF 10V
C 807	0256690	ELECTROLYTIC 10UF 16V
C 809	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C 811	0256692	ELECTROLYTIC 22UF 16V
C 814	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 815	0256701	ELECTROLYTIC 3.3UF 100V
C 816	0201997	CERAMIC DISC 0.1UF+80-20% 50V
C 817	0201037	CERAMIC CHIP 330PF+-5% 50V
C 818	0201039	CERAMIC CHIP 470PF+-5% 50V
C 819	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 820	0256360	ELECTROLYTIC 0.1UF 35V
C 821	0256687	ELECTROLYTIC 3.3UF 25V
C 822	0256685	ELECTROLYTIC 1UF 50V
C 823	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 824	0256170	ELECTROLYTIC 100UF 10V
C 826	0256690	ELECTROLYTIC 10UF 16V
C 828	0201997	CERAMIC DISC 0.1UF+80-20% 50V
C 829	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
R 801	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 802	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 803	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 804	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 805	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 806	0103818	CHIP RESISTOR 8.2OHM+-10% 0.1W
R 807	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 808	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 809	0103880	CHIP RESISTOR 1.5MOHM+-5% 0.1W
R 810	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 811	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 812	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 813	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 814	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 815	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 816	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 817	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 818	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 819	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 820	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 821	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 822	0103831	CHIP RESISTOR 100OHM+-5% 1/4W
R 823	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 824	0103831	CHIP RESISTOR 100OHM+-5% 1/4W
R 825	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
RT 801	5007715	SEMI BARIABLE 10KOHM
RT 802	5007711	SEMI VARIABLE 470OHM
RT 803	5007468	SEMI VARIABLE 1MOHM

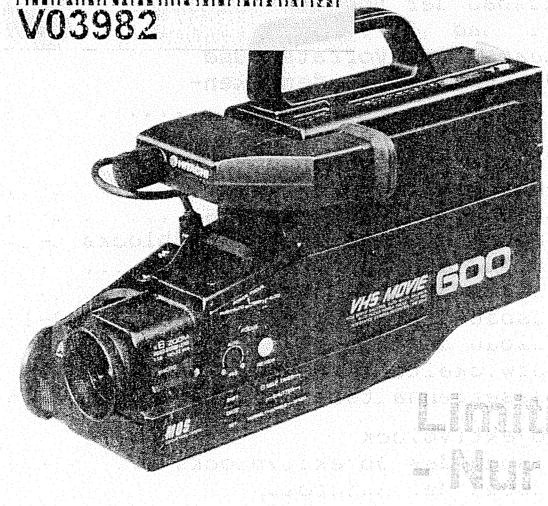
SYMBOL-NO	P-NO	DISCRIPTION
RT 805	5007468	SEMI VARIABLE 1MOHM
D 801	5331002	TRANSISTOR ISS81-F1
D 802	5328321	DIODE MA151K (MH)
D 803	5380691	LED SLR34UR5
IC801	5364742	IC BA7125L
Q 801	5328211	TRANSISTOR 2SA1121C (SC)
Q 802	5328241	TRANSISTOR 2SC2463E(DE)
Q 803	5323831	TRANSISTOR 2SD974
T 801	5240322	FLYBACK TRANSFORMER
L 801	5152612	CHOKE COIL 220UH
L 802	5152598	CHOKE COIL 22UH+-10%
L 803	5244002	LINEAR COIL
CS 801	5654625	SOCKET, CRT
TF 801	5721352	FUSE

HITACHI SERVICE MANUAL

TK **No. 2808G** verh.

VM-600E
E(AU.UK.AV.I)

V03982



Technische Daten

Anleitungen für das Modell VM-600E

Benennung	Modell	Anleitung-Nr.
Technische Informationen	VM-600E	2809G

065.252.9

Limitierte Ausgabe
- Nur an Leitstellen -

065.252.9

VHS

Dieser Video-Kamerarecorder entspricht dem VHS-Format. Für richtigen Betrieb mussen daher VHS-Magnetband-Cassetten verwendet werden.

Technische Daten

■ **Allgemeines**	
Stromversorgung	12V Gleichstrom
Leistungsaufnahme	9,5W [bei auf Position MAN gestelltem Schalter für automatische/ manuelle Scharfeinstellung (AUTO/MAN FOCUS)]
Abmessungen (B x H x L)	117 x 230 x 348 mm
Gewicht	2,0 kg
■ **Video-Aufnahmesystem**	
Format	VHS
Aufnahme-/Wiedergabesystem	Vier Video-Aufnahme-/Wiedergabeköpfe
Videosignal	PAL-Farb- und CCIR-Schwarzweißsignale, 625 Zeilen
Bandgeschwindigkeit	23,39 mm/sek.
Video-Eingangspegel	1,0 Vs-s, 75 Ohm (mit Audio/Video-Eingangsadapter)
Video-Ausgangspegel	1,0 Vs-s, 75 Ohm
Mikrofoneingang	−68 dB, mehr als 1 kOhm
Audio-Eingangspegel	−8 dB, mehr als 50 kOhm (mit Audio/Video-Eingangsadapter)
Audio-Ausgangspegel	−8 dB, weniger als 1 kOhm
Ohrhörer-Ausgang	−26 dB (8 Ohm Buchse)
Schnellvorlauf-/Rücklaufdauer	Weniger als 8 Minuten mit Kassette E-180
■ **Kamera**	
Abtastung	625 Zeilen/50 Halbbilder/25 Vollbilder
Mindestbeleuchtung	10 Lux
Aufnahmeröhre	2/3-Zoll Festkörper-MOS-Bildsensor
Objektivdurchmesser	46 mm

Sicherheitshinweise

Die folgenden Vorsichtsmaßnahmen sind einzuhalten, wenn Wartungsarbeiten an diesem Modell ausgeführt werden.

1. Da verschiedene Teile dieses Gerätes besondere Sicherheitsfunktionen aufweisen, nur Hitachi Original-Ersatzteile verwenden. Besonders kritische Teile im Netzteil dürfen nicht durch Teile anderer Hersteller ersetzt werden. Die kritischen Teile sind in den Schaltplänen und Leiterplatten-Diagrammen mit dem Symbol ⚠ gekennzeichnet.
2. Bevor das reparierte Gerät an den Kunden ausgeliefert wird, muß der Wartungstechniker das Gerät einer griündlichen Prüfung unterziehen, um optimale Betriebsicherheit sicherzustellen und die Gefahr elektrischer Schläge auszuschließen.

ÄNDERUNGEN DER TECHNISCHEN DATEN UND DES DESIGNS VORBEHALTEN

VIDEO-KAMERAREKORDER

April **1988** **TOKAI WORKS**

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Kapitel 6 Auseinandergezogene Darstellungen

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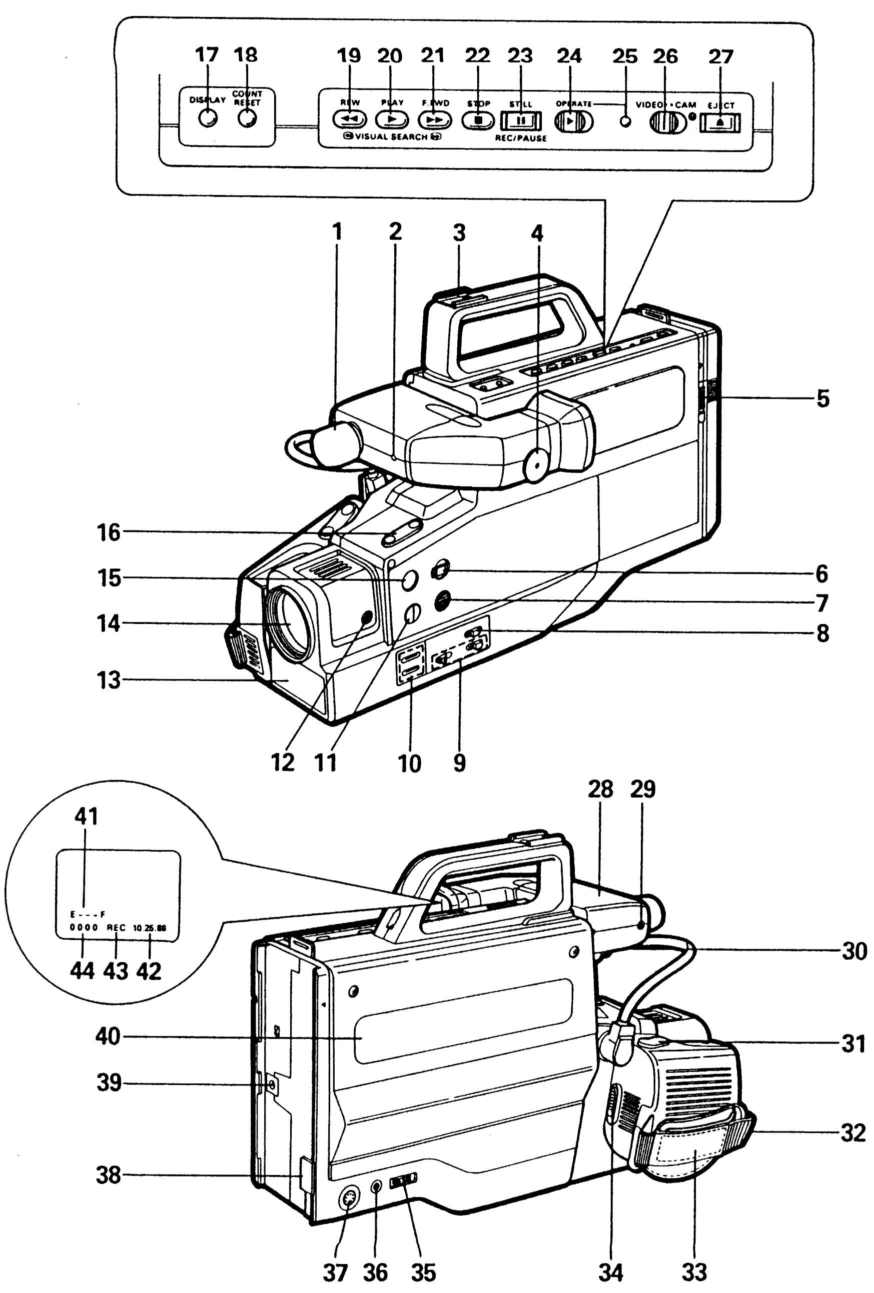
Kapitel 7 Stückliste

Stückliste 7-1

Kapitel 1

Identifikation und Funktion der Regler



1. **Mikrofon**
   Dieses Richtmikrofon nimmt die Tonsignale aus der Richtung auf, in die der Video-Kamerarekorder gerichtet wird.
2. **Aufnahmeanzeige**
   Blinkt für etwa 10 Sekunden, wenn der SELF TIMER Schalter wärend des Aufnahme/Pause-Modus (Bereitschaft) gedrückt wird, und bleibt eingeschaltet, wenn die Aufnahme beginnt.
3. **Aufsteckschuh**
   Hier kann eine Filmleuchte (Sonderzubehör) angebracht werden.
4. **Diopter-Regler**
   Um den elektronischen Sucher ohne Brillen zu verwenden, diesen Regler drehen, um optimale Sucheranzeige in Abhängigkeit von Ihrer Sehschärfe zu erhalten.
5. **Akku-Freigabeknopf (BAT EJECT)**
   Dient für die Freigabe des Akkus oder des an dem Video-Kamerarekorder angebrachten Netz-/Ladegerätes.
6. **Wahlschalter für automatische/manuelle Scharfeinstellung (AUTO/MAN FOCUS)**
   Für automatische Scharfeinstellung (Entfernungseinstellung) die Position AUTO benutzen; den Schalter auf Position MAN stellen, wenn die Scharfeinstellung mit Hilfe der Fokussiertaste erfolgen soll.
7. **Durchsichttaste (REVIEW)**
   Wird in dem Aufnahme/Pause-Modus für die Durchsicht der letzten Sekunden einer aufgezeichneten Szene verwendet.
8. **Selbstauslöser-Schalter (SELF TIMER)**
   Diesen Schalter drücken, worauf die Aufnahme um 10 Sekunden verzögert beginnt.
9. **Verschlußgeschwindigkeits-Wahlschalter (SHUTTER SPEED)**
   Dient für die Einstellung der Verschlußgeschwindigkeit während des Aufnahme- oder Aufnahme/Pause-Modus (Bereitschaft).
10. **Datums-Einstelltasten (DATE)**
    Dient für das Einstellen des Datums während des Pause-Modus (Bereitschaft).
11. **Blendenregler (IRIS)**
    Bei auf Position AUTO gestelltem Regler wird die Blende automatisch eingestellt. Für manuelle Blendeneinstellung ist dieser Regler nach rechts oder links zu drehen.
12. **Makro-Taste (MACRO)**
    Kann für Makro-Aufnahmen in einer Entfernung von bis zu nur 1 cm vor dem Objektiv verwendet werden.
13. **Infrarot-Fenster für automatische Scharfeinstellung**
    Bei automatischer Scharfeinstellung des Objektives wird die Infrarot-Strahlung durch dieses Fenster ausgestrahlt und nach der Reflexion von dem Motiv (Objekt) wieder in diesem Fenster empfangen. Während der Aufnahme muß daher darauf geachtet werden, daß dieses Fenster nicht abgedeckt wird.
14. **Objektiv**
    Ein motorbetriebenes 6-fach Zoomobjektiv (Lichtstärke 1,6, Brennweitenbereich 12 ~ 72 mm) mit Scharfeinstell- und Blendenautomatik.
15. **Taste für automatische Scharfeinstellung (PUSH AUTO)**
    Durch Drücken dieser Taste kann auch während des manuellen Scharfeinstellmodus automatisch scharfeingestellt werden.
16. **Taste für motorbetriebene Scharfeinstellung (POWER FOCUS)**
    Den AUTO/MAN FOCUS Schalter auf Position MAN stellen und danach das Objekt durch Drücken dieses Schalters manuell scharfeinstellen.
17. **Anzeigetaste (DISPLAY)**
    Wenn der VIDEO/CAM Wahlschalter auf Position VIDEO gestellt ist, wird durch Drücken dieser Taste die Akkuanzeige und das vierstellige Bandzählwerk im elektronischen Sucher angezeigt. Die Taste nochmals drücken, um die Anzeige wieder zu löschen.
    Wenn der VIDEO/CAM Wahlschalter auf Position CAM gestellt ist, dann wird durch Drücken dieser Taste die sechsstellige Datumsanzeige im Sucher angezeigt. Durch nochmalige Betätigung dieser Taste wird auf die Akkuanzeige und die vierstelligen Bandzählwerksanzeige umgeschaltet.
    Durch nochmaliges Drücken der DISPLAY Taste verschwinden alle Anzeigen aus dem Sucher.
18. **Zählwerk-Nullstelltaste (COUNTER RESET)**
    Drücken, um das Bandzählwerk auf "0000" zu stellen.
    Hinweis:
    - Die Bandzählwerksanzeige und die Datumsanzeige bleiben für etwa vier Stunden gespeichert, auch wenn die Stromversorgung ausgeschaltet wird.
19. **Rücklauftaste (REW)**
    Diese Taste während des Stopp- oder Schnellvorlaufmodus drücken, um das Band zurückzuspulen. Wenn das Bandzählwerk angezeigt wird, erscheint der Schriftzug REW im Sucher. Diese Taste während der Wiedergabe drücken, worauf das Band mit etwa der 3 fachen Normalgeschwindigkeit rückwärts wiedergegeben wird.
    Die PLAY oder die STOP Taste drücken, um auf die normale Wiedergabe zurückzukehren oder das Bandlaufwerk abzuschalten.
20. **Wiedergabetaste (PLAY)**
    Dient für die Wiedergabe.
21. **Vorlauftaste (F.FWD)**
    Diese Taste während des Stopp- oder Rücklaufmodus drücken, um das Band schnell vorzuspulen. "FF" erscheint in dem Sucher, wenn das Bandzählwerk angezeigt wird.
    Falls diese Taste währen der Wiedergabe gedrückt wird, dann wird das Band mit etwa der dreifachen Normalgeschwindigkeit in Vorlaufrichtung wiedergegeben.
    Die PLAY Taste oder die STOP Taste drücken, um auf die normale Wiedergabe zurückzukehren bzw. das Bandlaufwerk auszuschalten.

22. **Stoptaste (STOP)**
Mit Hilfe der Stoptaste kann das Bandlaufwerk während der Wiedergabe-, Rücklauf- und Schnellvorlauffunktion abgeschaltet werden. Während der Aufnahmefunktion ist die Stoptaste nicht wirksam.

23. **Standbild-/Aufnahme-/Pause-Taste (STILL/REC/PAUSE)**
Wird diese Taste wähend der Aufnahme gedrückt, dann stoppt das Band und der Video-Kamerarekorder wird auf den Aufnahme-Pausemodus (Bereitschaft) geschaltet. Durch nochmaliges Drücken dieser Taste wird mit der Aufnahme wieder fortgesetzt. Während des Wiedergabemodus kann dieser Taste für die Anzeige eines Standbildes verwendet werden.

24. **Betriebstaste (OPERATE)**
Diese Taste drücken, um den Video-Kamerarekorder einzuschalten; durch nochmalige Betätigung dieser Taste wird der Video-Kamerarekorder wieder abgeschaltet. Die OPERATE Kontrollampe leuchtet auf, wenn der Video-Kamerarekorder durch Drücken dieser Taste eingeschaltet wird.

25. **Betriebs-/Kondensatanzeige**
Kondensatbildung im Bandlaufwerk des Video-Kamerarekorder wird durch Blinken dieser Anzeigeleuchte angezeigt. Bei blinkender Leuchte arbeitet das Gerät nicht. In diesem Fall die Cassette auswerfen und die Stromversorgung eingeschaltet belassen. Sobald die Leuchte das Blinken einstellt, kann der Video-Kamerarekorder wieder betrieben werden.

26. **Videorekorder/Kamera-Wahlschalter (VIDEO/CAM)**
Mit diesem Wahlschalter wird der Video-Kamerarekorder auf den Aufnahme- oder Wiedergabemodus geschaltet. Die Position CAM ist für das Videografieren (Aufnahme) zu verwenden.

27. **Auswurftaste (EJECT)**
Diese Taste drücken, um die Kassette in den Video-Kamerarekorder einzusetzen bzw. aus diesem zu entfernen.

28. **Elektronischer Sucher (EVF)**
Im elektronischen Sucher wird der jeweils eingestellte Bildausschnitt gezeigt. Der elektronische Sucher kann auch als Schwarzweiß-Monitor während der Wiedergabe des aufgezeichneten Bildmaterials verwendet werden.

29. **Mikrofonbuchse**
Hier kann ein externen Mikrofon (Sonderzubehör) für die Tonaufnahme angeschlossen werden.

Hinweis: Durch den Anschluß eines externen Mikrofon wird das eingebaute Mikrofon automatisch ausgeschaltet.

30. **Mikrofon-Normal/Wind-Schalter**
Dieser Schalter reduziert Windgeräusche. Für normale Verwendung die Position NORMAL verwenden.

31. **Schalter für motorbetriebenes Zoomobjektiv**
Mit diesem Schalter kann die Brennweite des Zoomobjektives elektrisch verstellt werden.
"W": Brennweitenverstellung in Richtung Weitwinkel.
"T": Brennweitenverstellung in Richtung Tele.

32. **Objektivdeckellasche**
Den Objektivdeckel an dieser Lasche anbringen, wenn Sie aufnahmebereit sind. Diese Lasche verhindert ein Schwingen des Objektivdeckels an seiner Schnur.

33. **Handgurt**
Den Gurt so einstellen, daß der Video-Kamerarekorder richtig in der Hand liegt.

34. **Aufnahme-Start/Stop-Schalter**
Mit diesem Schalter wird der Video-Kamerarekorder gesteuert. Ist der Video-Kamerarekorder auf den Aufnahmemodus geschaltet, dann wird durch Drücken dieses Schalterknopfes mit der Aufnahme begonnen. Durch nochmaliges Drücken wird das Bandlaufwerk angehalten und der Video-Kamerarekorder schaltet auf den Aufnahme-Pausemodus (Bereitschaft).

35. **Spurlagenregler (TRACKING)**
Wird für die Wiedergabe eines auf einem anderen Videorekorder bespielten Magnetbandes verwendet. Für alle anderen Funktionen ist dieser Regler in seiner Raststellung (Mittelstellung) zu belassen.

36. **Ohrhörerbuchse (EARPHONE)**
Der von dem Mikrofon aufgenommene bzw. von dem Video-Kamerarekorder wiedergegebene Ton kann über einen an diese Buchse angeschlossenen Ohrhörer mitgehört werden.

37. **Audio/Video-Ausgangsbuchse (A/V OUT)**
Ein Audio/Video-Ausgangskabel an diese Buchse und an die Audio- und Video-Eingangsbuchsen Ihres Fernsehempfängers/Monitors anschließen. Auch ein HF-Konverter (Sonderzubehör) kann an diese Buchse und Ihren Fernsehempfänger angeschlossen werden.

38. **Stromanschluß-Schutzabdeckung**
Diese Schutzabdeckung sollte immer in ihrer obersten Position belassen werden, um den Stromanschluß abzudecken.

39. **Gleichstrom-Eingangsbuchse (DC IN-12V)**
Hier kann ein als Sonderzubehör erhältliches Autobatteriekabel angeschlossen werden, um den Video-Kamerarekorder über die Zigarettenanzünderbuchse Ihres Fahrzeuges mit Strom zu versorgen.

40. **Kassettenhalter**
Die Auswurftaste drücken, um den Kassettenhalter zu öffnen. Die Kassette in richtiger Richtung einsetzen.
Hinweis: Eine Stromversorgung muß angeschlossen sein, um den Kassettenhalter öffnen zu können.

41. **Akkuanzeige**
Zeigt den Zustand der Batterie an.
- Bei voll aufgeladenem Akku wird "E– – –F" angezeigt. Wenn der Akku fast erschöpft ist, wird nur noch ein Bindestrich angezeigt. Wenn der letzte Bindestrich zu blinken beginnt, dann muß auf eine andere Stromversorgung gewechselt oder der Akku aufgeladen werden.

42. **Datumsanzeige**
Zeigt während des Aufnahme- oder Aufnahme/Pausemodus (Bereitschaft) das Datum an. Das Datum kann mit dem Objekt aufgezeichnet werden.

43. **Modusanzeige**
Zeigt den Betriebsmodus an.
- **"REC"** wird während des Aufnahmemodus angezeigt.
- **"REW"** wird während des Rückspulens angezeigt.
- **"FF"** wird während des schnellen Vorlaufs angezeigt.

44. **Bandzählwerk**
Zeigt das Bandzählwerk (0000–9999) an.

Kapitel 2 Demontage

1. Deckel

1-1 Ausbau des elektronischen Suchers (EVF)

1. Das EVF-Kabel abtrennen (siehe Abb. 2-1).
2. Den elektronischen Sucher in Richtung des Pfeiles (A) bewegen.
3. Die Aufsteckschuhfeder in Richtung des Pfeiles (A) ziehen und den elektronischen Sucher in Richtung des Pfeiles (B) abnehmen (siehe Abb. 2-2).
4. Wenn der elektronische Sucher eingebaut wird, zuerst die Aufsteckschuhfeder an dem EVF-Aufsteckschuh anbringen.

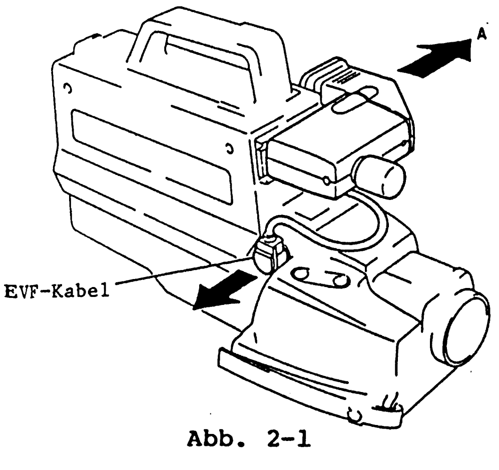


Abb. 2-1

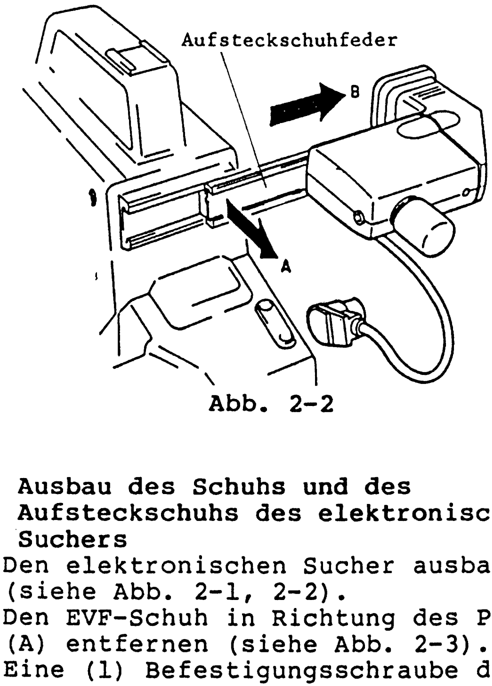


Abb. 2-2

1-2 Ausbau des Schuhs und des Aufsteckschuhs des elektronischen Suchers

1. Den elektronischen Sucher ausbauen (siehe Abb. 2-1, 2-2).
2. Den EVF-Schuh in Richtung des Pfeiles (A) entfernen (siehe Abb. 2-3).
3. Eine (1) Befestigungsschraube des EVF-Schuhs entfernen.
4. Den Gummiabstandhalter von der Seite des rechten Deckels abnehmen.
5. Eine (1) Befetigungsschraube der Blattfeder lösen und die Blattfeder in Richtung der Pfeiles (B) abnehmen.
6. Eine (1) Befestigungsschraube des Aufsteckshuhs lösen und den Aufsteckschuh in Richtung des Pfeiles (C) abnehmen.

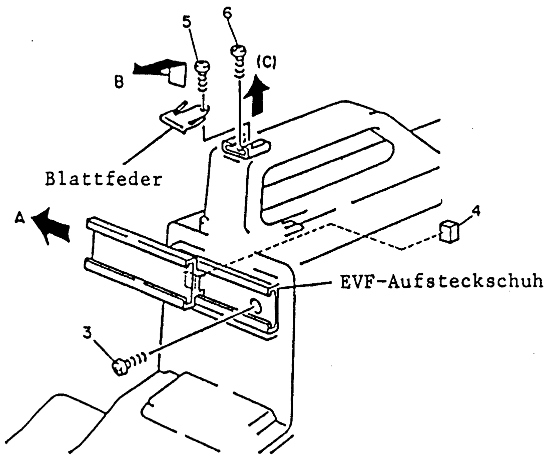


Abb. 2-3

1-3 Ausbau des Handgriffs

1. Eine (1) Befestigungsschraube des Handgriffs lösen (siehe Abb. 2-4).
2. Den Hangriff in Pfeilrichtung abnehmen.

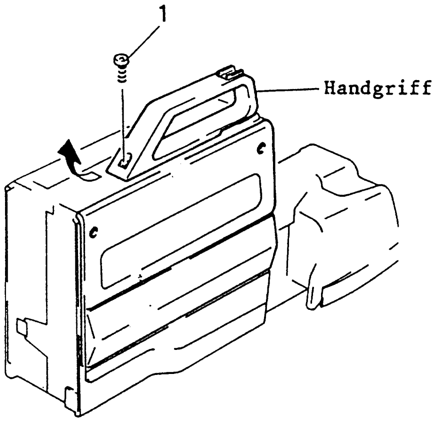


Abb. 2-4

1-4 Ausbau des Cassettenschachtdeckels

1. Zwei (2) Befestigungsschrauben des Cassettenschachtdeckels entfernen (siehe Abb. 2-5)
2. Den Cassettenschachtdeckel in Pfeilrichtung abnehmen.

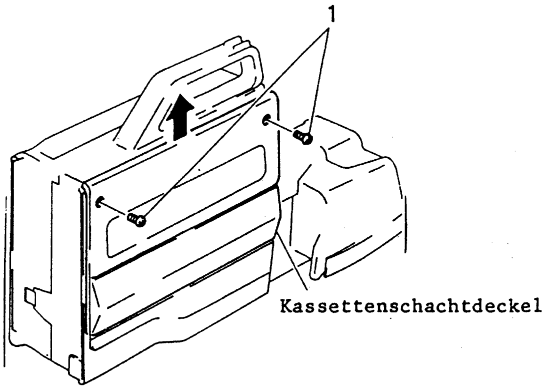


Abb. 2-5

1-5 Ausbau des linken Deckels

1. Den elektronischen Sucher ausbauen (siehe Abb. 2-1, 2-2).
2. Eine (1) Befestigungsschraube der Griffabdeckung lösen und die Griffabdeckung abnehmen (siehe Abb. 2-6).
3. Drei (3) Befestigungsschrauben des linken Deckels und des Filterringes entfernen.
4. Sechs (6) Befestigungsschrauben des linken Deckels abnehmen (siehe Abb. 2-7).
5. Den linken Dekel in Pfeilrichtung entfernen.

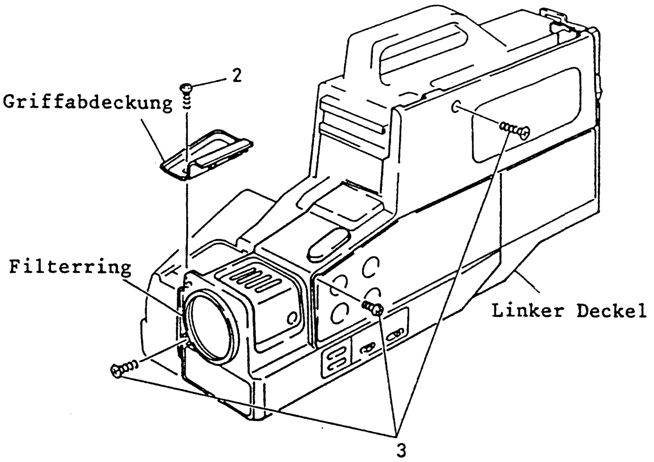


Abb. 2-6

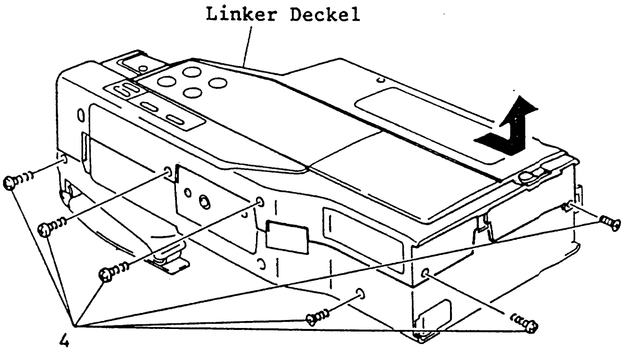


Abb. 2-7

1-6 Ausbau des rechten Deckels

1. Den elektronischen Sucher ausbauen (siehe Abb. 2-1, 2-2).
2. Den Cassettenschachtdeckel ausbauen (siehe Abb. 2-5).
3. Den linken Deckel ausbauen (siehe Abb. 2-6, 2-7).
4. Den Stecker CN902 abziehen (siehe Abb. 2-8).
5. Drei (3) Befestigungsschrauben des rechten Deckels lösen (siehe Abb. 2-9).
6. Zwei (2) Befestigungsschrauben des rechten Deckels abnehmen (siehe Abb. 2-10).
7. Eine (1) Lasche freigeben (siehe Abb. 2-9).
8. Den Rechten Deckel in Pfeilrichtung anheben, so daß der Löschschutzlamellenschalter freigegeben wird, und den Deckel abnehmen (siehe Abb. 2-10).

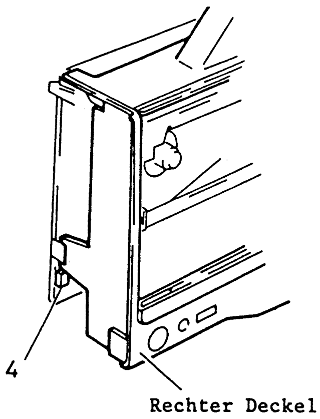

4
Rechter Deckel

Abb. 2-8

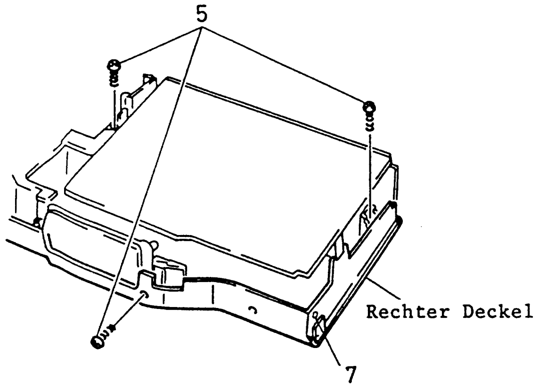

5
Rechter Deckel
7

Abb. 2-9

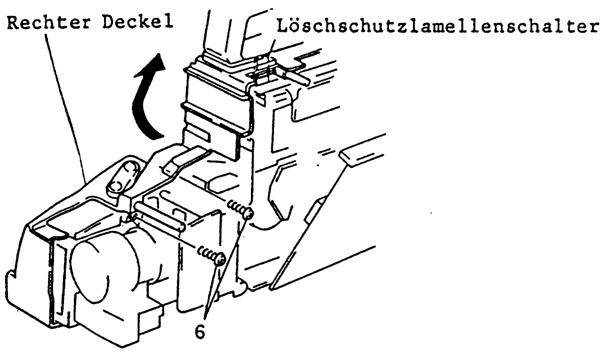

Rechter Deckel
Löschschutzlamellenschalter
6

Abb. 2-10

2. Leiterplatte

Alle früher Beschriebenen Abdeckungen entfernen.

2-1 Ausbau der Haupt-Leiterplatte

1. Das Massekabel von der Haupt-Leiterplatte abtrennen (siehe Abb. 2-11).
2. Zwei (2) Laschen freigeben, mit welchen die Haupt-Leiterplatte gehalten wird.
3. Die Haupt-Leiterplatte leicht öffnen und drei (3) Stecker (CN102, CN103, CN412) abziehen.
4. Die Haupt-Leiterplatte in Pfeilrichtung öffnen.
5. Dreizehn (13) Stecker (CN404, CN408, CN415, CN416, CN612, CN903, CN904, CN905, CN906, CN907, CN908, CN909, CN911) abziehen (siehe Abb. 2-12).
6. Zwei (2) Flachkabel (CN201, CN613) abziehen.
7. Zwei (2) Anschläge der Haupt-Leiterplatte freigeben.
8. Eine (1) Befestigungsschraube des Massekabels entfernen (siehe Abb. 2-13).

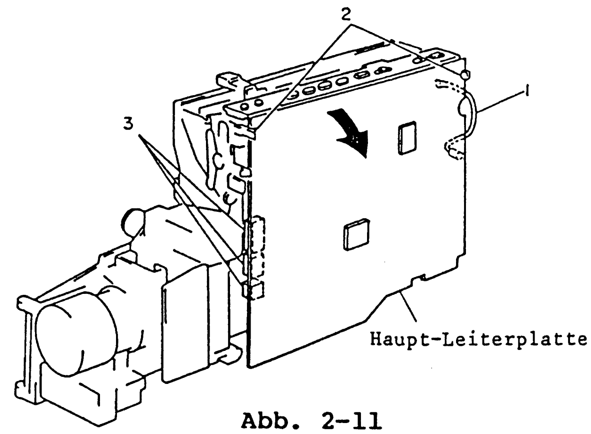

2
1
3
Haupt-Leiterplatte

Abb. 2-11

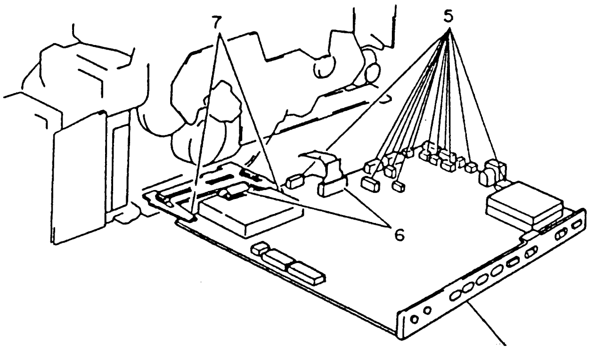

7
5
6
Haupt-Leiterplatte

Abb. 2-12

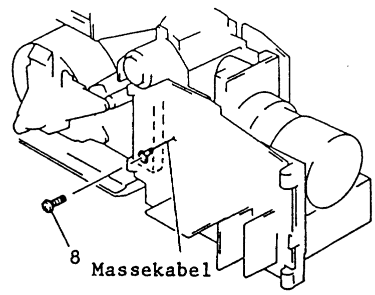

8
Massekabel

Abb. 2-13

2-2 Ausbau der Spurlagenregler-Leiterplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Zwei (2) Stecker (CN408, CN903) abziehen (siehe Abb. 2-14).
3. Eine (1) Lasche des Spurlagenregler-Leiterplatten-Halters freigeben.

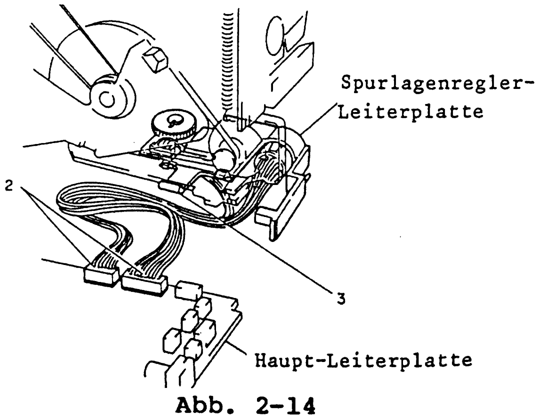

Spurlagenregler-Leiterplatte
2
3
Haupt-Leiterplatte

Abb. 2-14

2-3 Ausbau der Prozeß-Leiterplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Zwei (2) Stecker (CN102, CN103) abziehen (siehe Abb. 2-15).
3. Den Stecker CN101 abziehen.
4. Fünf (5) Stecker (CN002, CN003, CN003, CN4A, CN6A) abziehen (siehe Abb. 2-16).
5. Drei (3) Laschen freigeben, mit welchen die Prozeß-Leiterplatte festgehalten wird, und die Prozeß-Leiterplatte in Pfeilrichtung abnehmen.

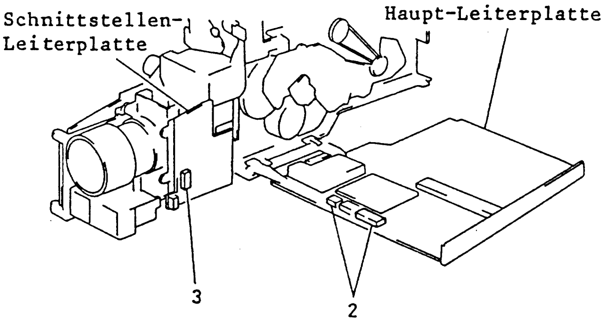

Schnittstellen-Leiterplatte
Haupt-Leiterplatte
3
2

Abb. 2-15

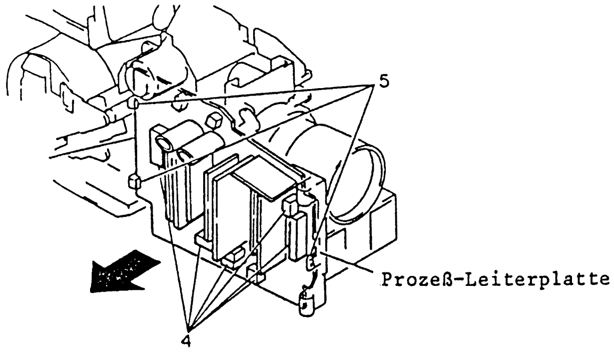

5
Prozeß-Leiterplatte
4

Abb. 2-16

2-4 Ausbau der Schnittstellen-Leiterplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN412 abziehen (siehe Abb. 2-17).
3. Vier (4) Stecker (CN001, CN101, CN413, CN5A) abziehen.
4. Drei (3) Laschen freigeben, die die Schnittstellen-Leiterplatte halten.

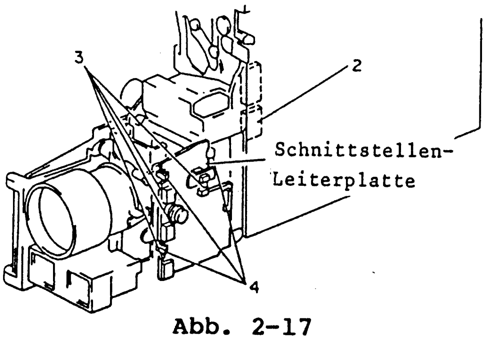

3
2
Schnittstellen-Leiterplatte
4

Abb. 2-17

2-5 Ausbau des EVF-Steckers

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Die Prozeß-Leiterplatte entfernen (siehe Abb. 2-15, 2-16).
3. Den Stecker CN404 abziehen (siehe Abb. 2-18).
4. Drei (3) Befestigungsschrauben der Prozeß-Leiterplatte lösen (siehe Abb. 2-19).

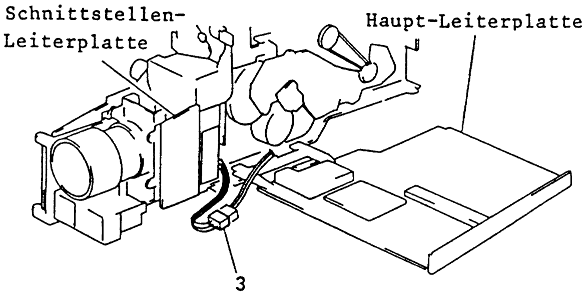

Schnittstellen-Leiterplatte
Haupt-Leiterplatte
3

Abb. 2-18

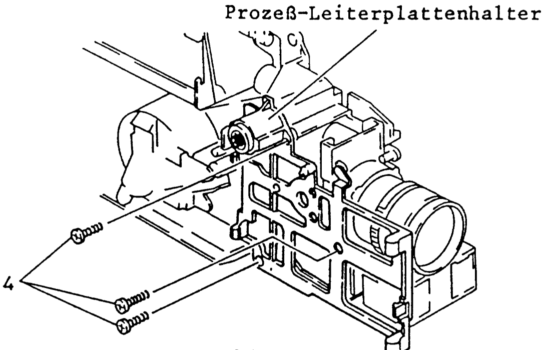

Prozeß-Leiterplattenhalter
4

Abb. 2-19

2-6 Ausbau der Sensor-Leiterplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Die Prozeß-Leiterplatte entfernen (siehe Abb. 2-15, 2-16).
3. Die Schnittstellen-Leiterplatte ausbauen (siehe Abb. 2-17).
4. Den EVF-Stecker abziehen (siehe Abb. 2-18, 2-19).
5. Zwei (2) Schrauben lösen und den Kamera-Abschnitt herausnehmen (siehe Abb. 2-20).
6. Zwei (2) Befestigungsschrauben des Schnittstellen-Leiterplatten-Halters lösen (siehe Abb. 2-21).
7. Eine (1) Schraube entfernen und den Sensor-Abschirmabdeckung in Pfeilrichtung herausnehmen (siehe Abb. 2-22).
8. Zwei (2) Schrauben entfernen und die Sensor-Leiterplatte herausnehmen (siehe Abb. 2-23).

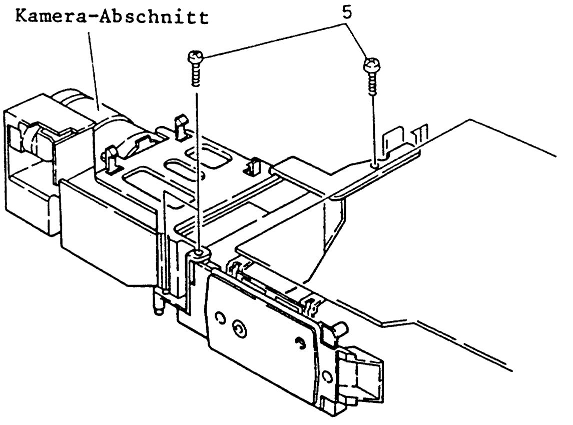

Kamera-Abschnitt
5

Abb. 2-20

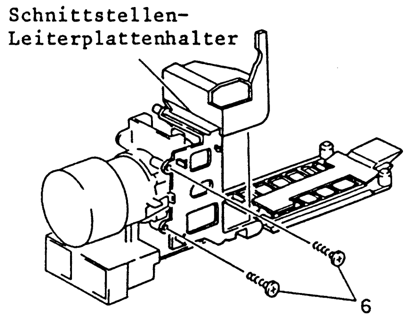

Schnittstellen-
Leiterplattenhalter
6

Abb. 2-21

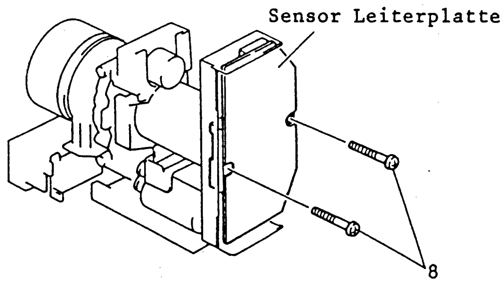

Sensor Leiterplatte
8

Abb. 2-23

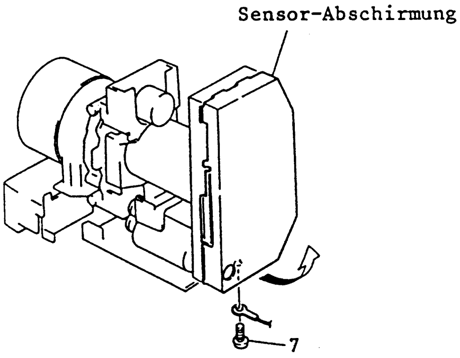

Sensor-Abschirmung
7

Abb. 2-22

Bandlaufwerk-Identifikation - Draufsicht (Abb. 2-25)

1. Auffangblock
2. Gesamtlöschkopf
3. Kopftrommelbürste
4. Obere Kopftrommel (Videoköpfe)
5. Führungsstift
6. Audio/Synchronkopf
7. Kondensatsensor
8. Andruckrolle
9. Capstanmotor
10. Aufwickelteller-Bandendensensor
11. Führungsarmeinheit
12. Aufwickelteller-Hilsfbremse
13. Aufwickleteller
14. Endlampe
15. Aufwickelteller-Führungsrolle
16. Vorratsteller
17. Spannband
18. Vorratsteller-Hilfsbremse
19. Spannarm
20. Vorratsteller-Führungsrolle
21. Vorratsteler-Bandendensensor
22. Zwischenrolle

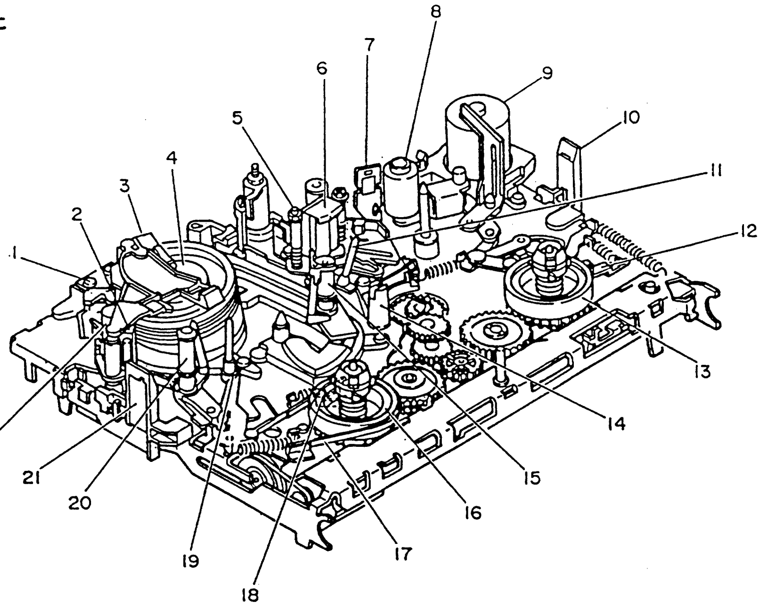

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Abb. 2-25

Bandlaufwerk-Identifikation - Bodenansicht (Abb. 2-26)

1. Capstan-Schwungrad
2. Nockenzahnradplatte
3. Audio/Synchronkopf-Steuerarm
4. Untere Kopftrommel (Kopftrommelmotoreinheit)
5. Bandlaufwerk-Statusschalter
6. Vorratsteller-Ladenockenzahnrad
7. Aufwickelteller-Ladenockenzahnrad
8. Lademotor
9. Nockenzahnradarm
10. Gleitstück
11. Hauptbremsarm
12. Wickelteller-Zahnradblock
13. Wiedergabe/Aufnahme-Antriebsarm
14. Dämpfer
15. Hochgleitstück

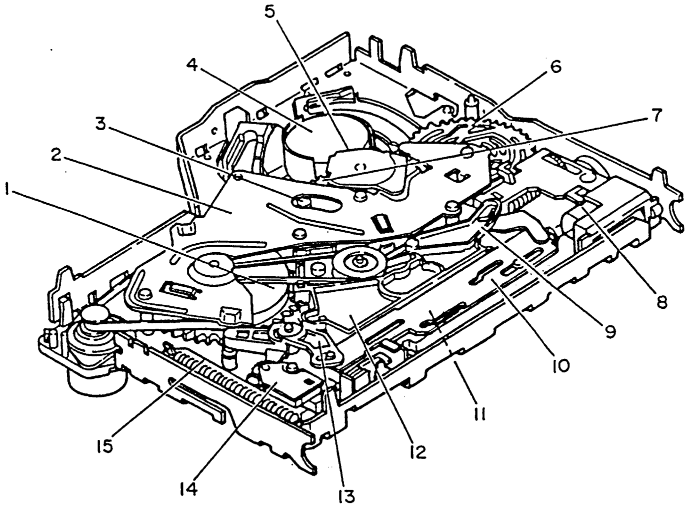
1
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Abb. 2-26

3. Bandtransport

Alle früher bechriebenen Abdeckungen entfernen.

3-1 Trennen des Videorecorder-Abschnittes von dem Kamera-Abschnitt

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Fünf (5) Stecker (CN102, CN103, CN404, CN412, CN911) abziehen (siehe Abb. 2-27).
3. Zwei (2) Befestigungsschrauben des Videorecorder- und Kamera-Abschnittes lösen (siehe Abb. 2-28).

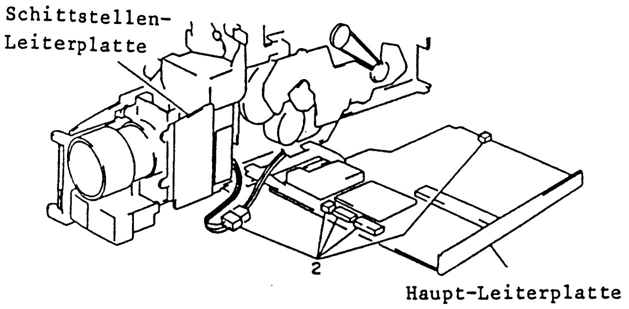

Schittstellen-Leiterplatte
2
Haupt-Leiterplatte

Abb. 2-27

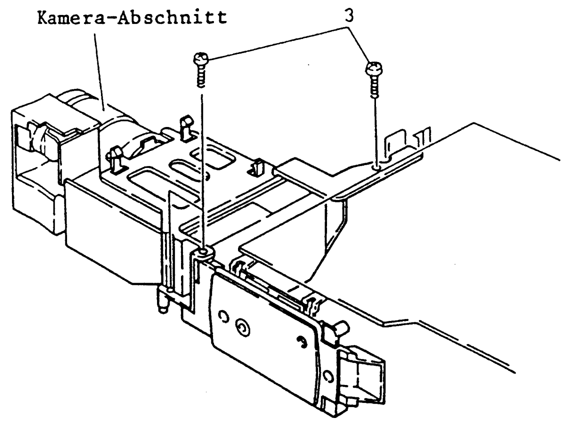

Kamera-Abschnitt
3

Abb. 2-28

3-2 Ausbau des Bandlaufwerkes

1. Die Haupt-Leiterplatte ausbauen (siehe Abb. 2-11, 2-12, 2-13).
2. Den Videorecorder- und den Kamera-Abschnitt trennen (siehe Abb. 2-27, 2-28).

3-3 Ausbau des Cassettenhalters

1. Den Videorecorder- von dem Kamera-Abschnitt trennen (siehe Abb. 2-27, 2-28).
2. Eine (1) Befestigungsschraube des Löshschutzlamellenschalters entfernen (siehe Abb. 2-29).
3. Eine (1) Lasche lösen und den Cassettehalter hochheben.
4. Die Cassettenhalterfeder entfernen (siehe Abb. 2-30).
5. Zwei (2) Befestigungsschrauben des Cassettenhalters entfernen (siehe Abb. 2-30, 2-31).
6. Den Frontarm in Pfeilrichtung (A) bewegen (siehe Abb. 2-32, 2-33).
7. Den hinteren Arm in Pfeilrichtung (B) bewegen.

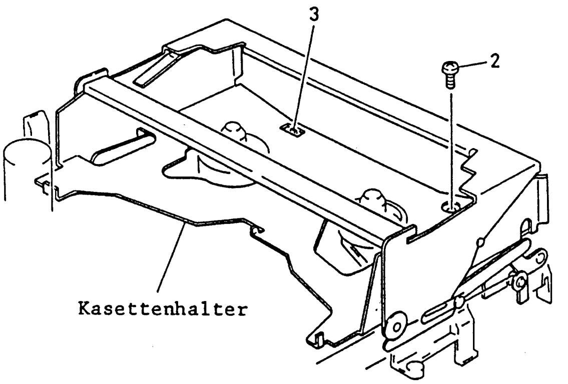

3
2
Kasettenhalter

Abb. 2-29

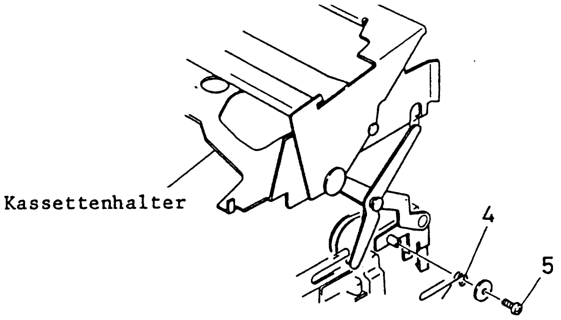

Kassettenhalter
4
5

Abb. 2-30

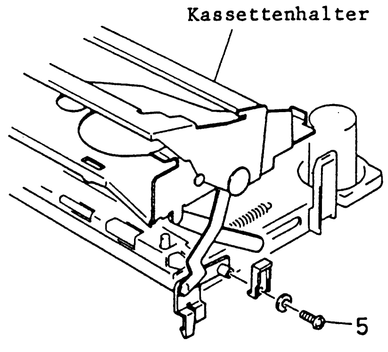

Kassettenhalter
5

Abb. 2-31

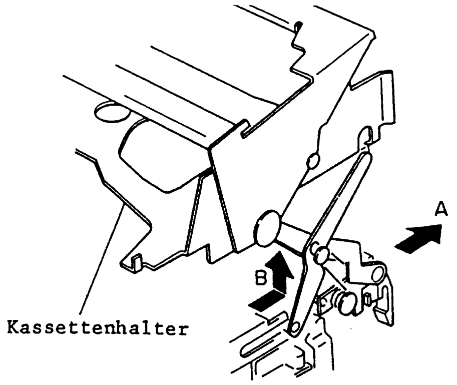

A
B
Kassettenhalter

Abb. 2-32

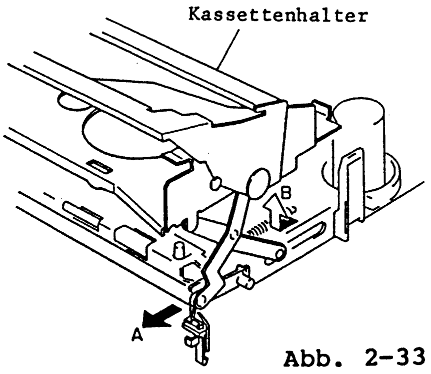

Kassettenhalter
B
A

Abb. 2-33

3-4 Ausbau der oberen Kopftrommel (Videoköpfe)

1. Eine (1) Befestigungsschraube der Kopftrommelbürste entfernen (siehe Abb. 2-34).
2. Zwei (2) Befestigungsschrauben des Kopftrommeldämpfers entfernen.
3. Zwei (2) Befestigungsschrauben der oberen Kopftrommel entfernen.
4. Acht (8) Leiter von der oberen Kopftrommel ablöten und die obere Kopftrommel hearsusziehen (siehe Abb. 2-35).

Hinweis: Darauf achten, daß die Spitzen den Videoköpfe nicht mit den Fingern oder Werkzeugen berührt werden. Den Einbau der Videoköpfe durch sinngemäße Umkehr der Ausbauvorgänge ausführen. Die zwei (2) Videokopf-Befestigungsschrauben abwechseln anziehen. Nach dem Einbau der Videoköpfe die folgenden Einstellungen vornehmen.

* Spurlagen-Voreinstellung
* Audio/Synchronkopf (Horizontalposition)
* Kopfwechselpunkt
* Aufnahme-Chromapegel
* Aufnahme-Luminanzpegel

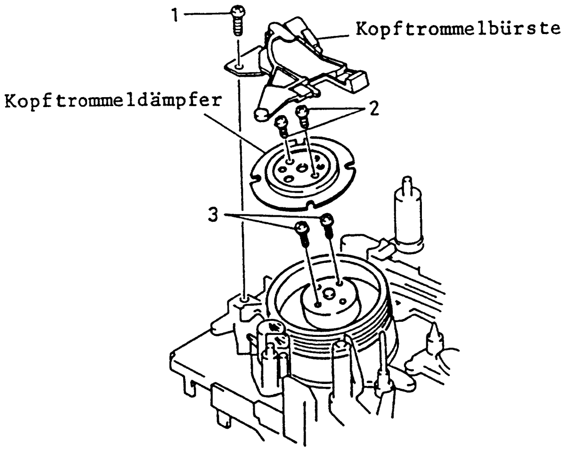


Abb. 2-34

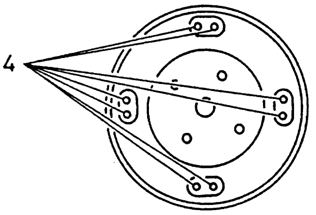


Abb. 2-35

3-5 Ausbau des Audio/Synchronkopfes

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN415 abziehen (siehe Abb. 2-36).
3. Die Drähte von dem Drahthalter freigeben (siehe Abb. 2-37).
4. Drei (3) Befestigungsschrauben des Audio/Synchronkopfes entfernen.

Hinweis: Nach dem Einbau des Audio/Synchronkopfes die folgeden Einstellungen durchführen.

* Audio/Synchronkopf (Grobeinstellung)
* Audio/Synchronkopf (Höhe/Neigung/Azimut)
* Audio/Synchronkopf (Horizontalposition)

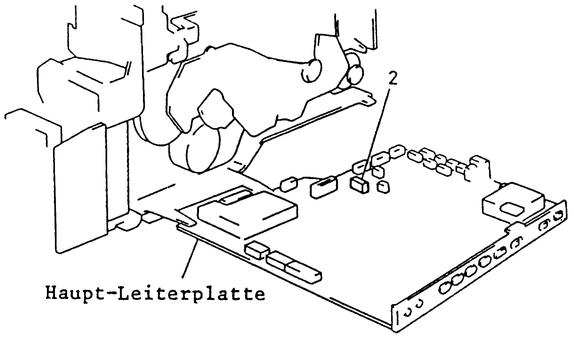


Abb. 2-36

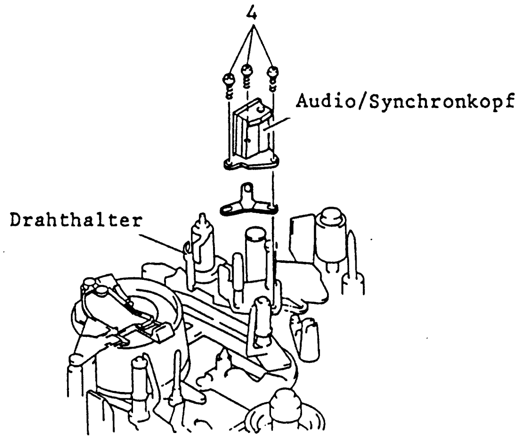


Abb. 2-37

3-6 Ausbau des Gesamtlöschkopfes (FE)

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN416 abziehen (siehe Abb. 2-28).
3. Eine (1) Befestigungsschraube der Kopftrommel-Abschirmung entfernen (siehe Abb. 2-39).
4. Die Feder zwischen der Geamtlöschkopf-Grundplatte und dem Chassis freigeben.
5. Eine (1) Mutter entfernen und die Gesamtlöschkopf-Grundplatte herausziehen.
6. Eine (1) Schraube von der Rückseite der Gesamtlöschkopf-Grundplatte entfernen.

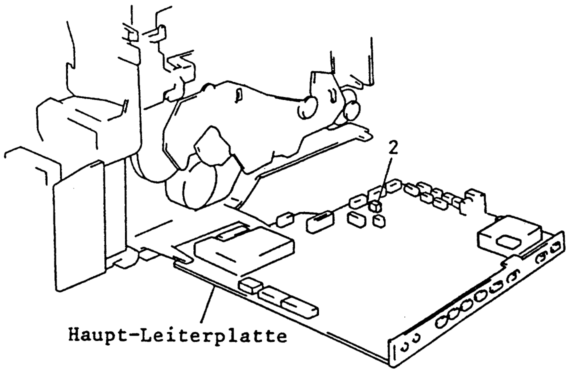


Abb. 2-38

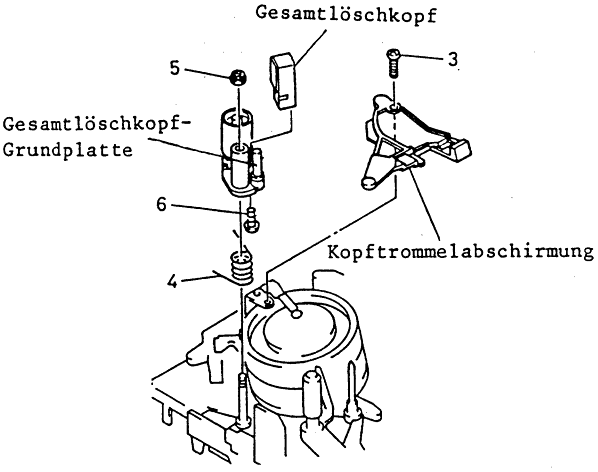

Gesamtlöschkopf
5
3
Gesamtlöschkopf-
Grundplatte
6
Kopftrommelabschirmung
4

Abb. 2-39

3-7 Ausbau des Vorratsteller- und des Aufwickelteller-Bandendensensors

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Videorecorder- von dem Kamera-Abschnitt trennen (siehe Abb. 2-27, 2-28).
3. Den Stecker CN909 abtrennen (siehe Abb. 2-40).
4. Eine (1) Lasche freigeben und den Aufwickleteller-Bandendensensor in Pfeilrichung abnehmen (siehe Abb. 2-41).
5. Eine (1) Lasche freigeben und den Vorratsteller-Bandendensensor in Pfeilrichtung abnehmen (siehe Abb. 2-42).

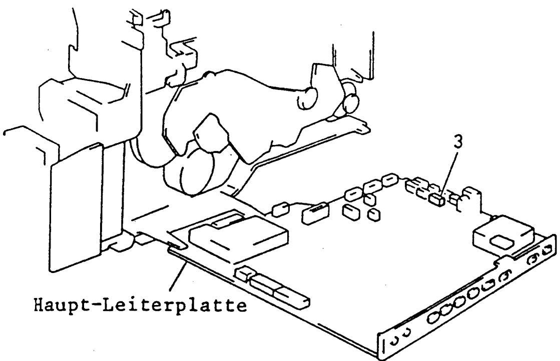

3
Haupt-Leiterplatte

Abb. 2-40

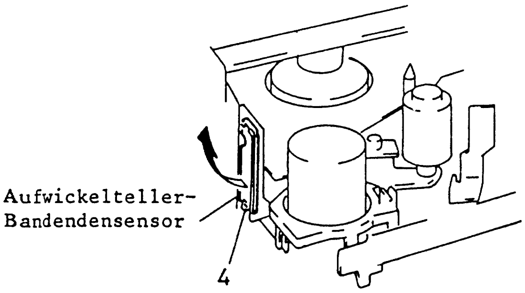

Aufwickelteller-
Bandendensensor
4

Abb. 2-41

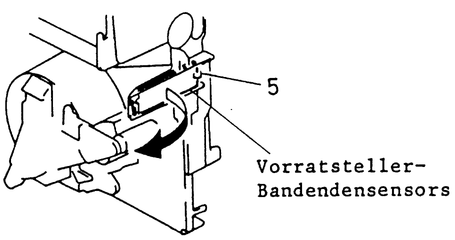

5
Vorratsteller-
Bandendensensors

Abb. 2-42

3-8 Ausbau des Kondensatsensors

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN905 abziehen (siehe Abb. 2-43).
3. Eine (1) Befestigungsschraube des Kondensatsensors lösen (siehe Abb. 2-44).

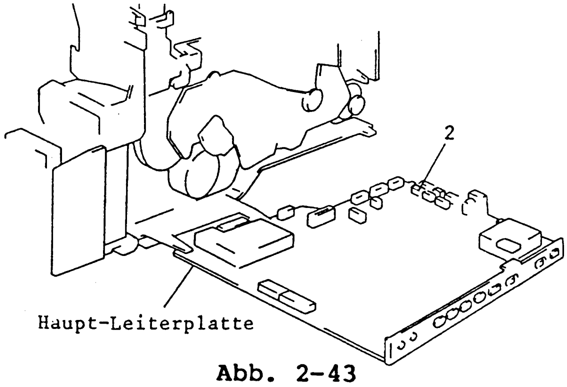

2
Haupt-Leiterplatte

Abb. 2-43

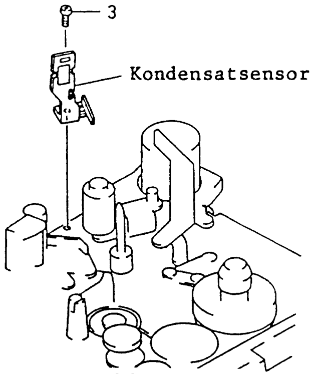

3
Kondensatsensor

Abb. 2-44

3-9 Ausbau des Löschschutzlamellenschalters und der Bandendenlampe

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Cassettehalter anheben (siehe Abb. 2-29).
3. Den Steker CN908 abziehen (siehe Abb. 2-45).
4. Die Drähte von dem Drahthalter entfernen.
5. Eine (1) Befestigungsschraube des Löschschutzlamellenschalters lösen (siehe Abb. 2-46).
6. Die Feder zwischen dem Chassis und der Bandendenlampe entfernen (siehe Abb. 2-47).
7. Eine (1) Befestigungsschraube der Bandendenlampe entfernen.

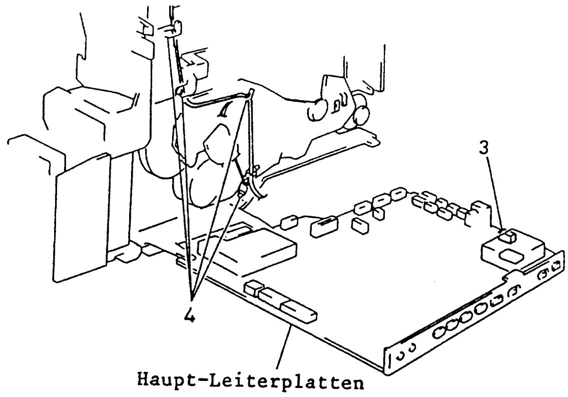

3
4
Haupt-Leiterplatten

Abb. 2-45

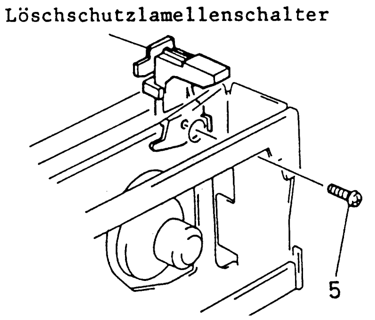

Löschschutzlamellenschalter
5

Abb. 2-46

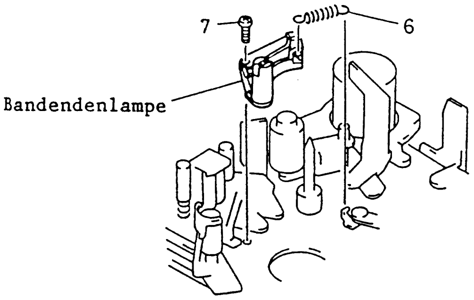

7
6
Bandendenlampe

Abb. 2-47

3-10 Ausbau des Bandlaufwerk-Statusschalters

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN907 abziehen (siehe Abb. 2-48).
3. Die Drähte von dem Drahthalter freigeben (siehe Abb. 2-49).
4. Eine (1) Befestigungsschraube des Bandlaufwerk-Statusschalters entfernen.

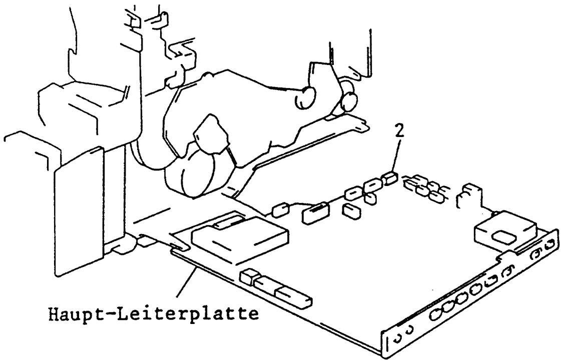

2
Haupt-Leiterplatte

Abb. 2-48

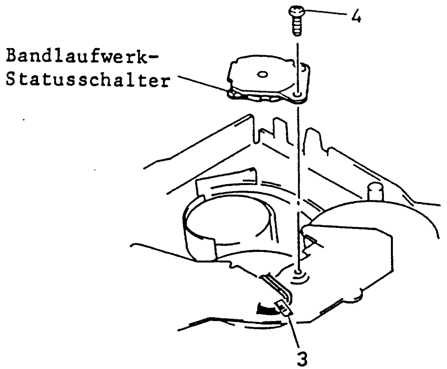

4
Bandlaufwerk-
Statusschalter
3

Abb. 2-49

3-11 Ausbau der unteren Kopftrommel (Kopftrommelmotoreinheit)

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Die obere Kopftrommel ausbauen (siehe Abb. 2-34, 2-35).
3. Zwei (2) Flachkabel (CN612, CN613) abtrennen (siehe Abb. 2-50).
4. Drei (3) Befestigungsschrauben der unteren Kopftrommel und der Kopftrommel-Abschirmung entfernen (siehe Abb. 2-51).

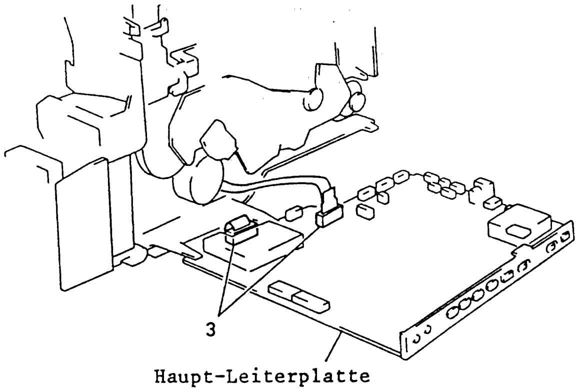

3
Haupt-Leiterplatte

Abb. 2-50

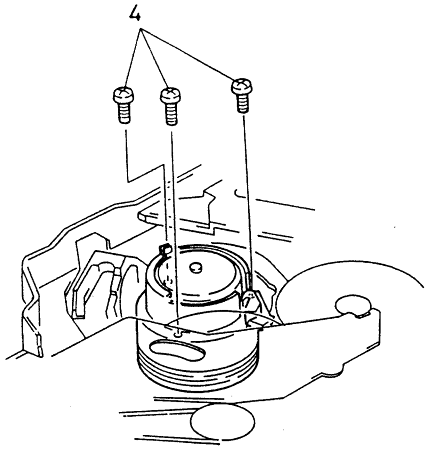


Abb. 2-51

3-12 Ausbau des Capstanmotors

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Cassettehalter hochheben (siehe Abb. 2-30).
3. Den Stecker CN612 abziehen (siehe Abb. 2-52).
4. Die Riemenandeckung entfernen (siehe Abb. 2-53).
5. Den Riemen von der Capstanmotor-Riemenscheibe abnehmen.
6. Zwei (2) Befestigungsschrauben des Captanmotorhalters lösen (siehe Abb. 2-54).
7. Zwei (2) Befestigungsschrauben des Capstanmotors entfernen.

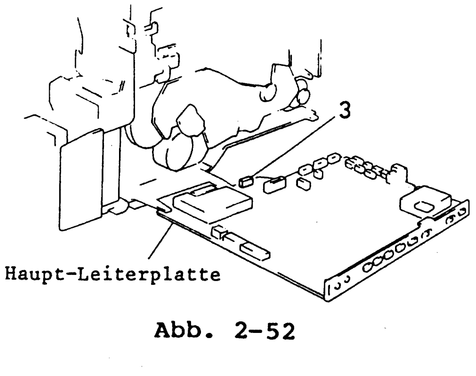

3
Haupt-Leiterplatte

Abb. 2-52

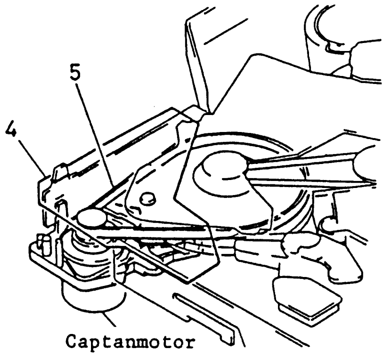

5
4
Captanmotor

Abb. 2-53

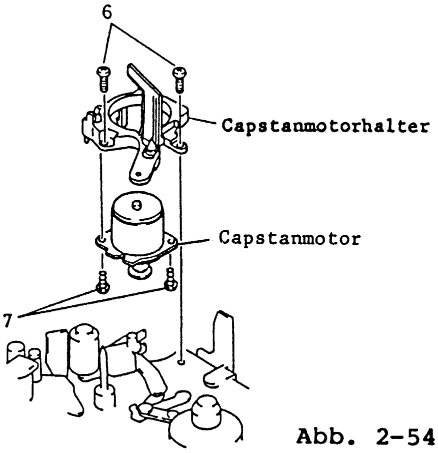

6
Capstanmotorhalter
Capstanmotor
7

Abb. 2-54

3-13 Ausbau des Lademotors

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Stecker CN906 abziehen (siehe Abb. 2-55).
3. Die Drähte von dem Drahthalter abnehmen (siehe Abb. 2-56).
4. Drei (3) Befestigungsschrauben des Lademotorblocks entfernen.
5. Den Riemen des Lademotors abnehmen (siehe Abb. 2-57).
6. Zwei (2) Befestigungsschrauben des Lademotors entfernen.

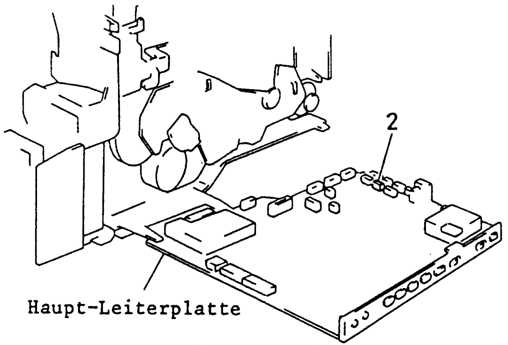

2
Haupt-Leiterplatte

Abb. 2-55

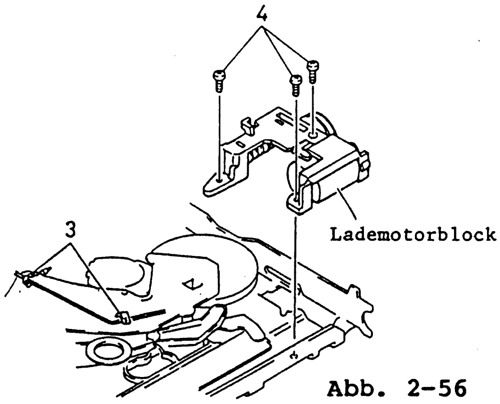

4
3
Lademotorblock

Abb. 2-56

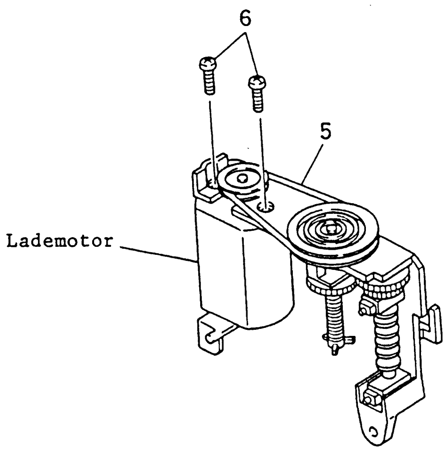

6
5
Lademotor

Abb. 2-57

3-14 Ausbau des Auffängblocks

1. Eine (1) Befestigungsschraube der Kopftrommelbürste entfernen (siehe Abb. 2-58).
2. Drei (3) Befestigungsschrauben des Auffangblocks entfernen.
3. Drei (3) Befestigungsschrauben der Kopftrommeleiheit entfernen (siehe Abb. 2-59).

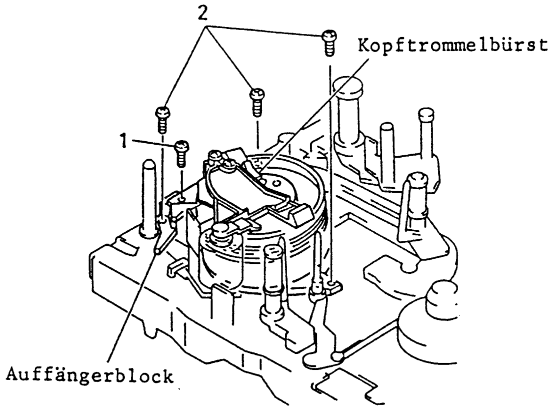

2
Kopftrommelbürst
1
Auffängerblock

Abb. 2-58

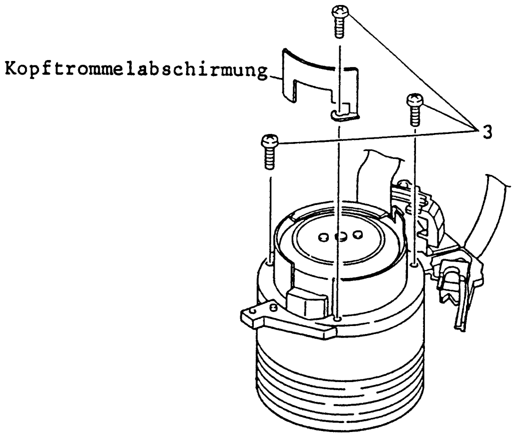

Kopftrommelabschirmung
3

Abb. 2-59

3-15 Ausbau der Zwischenrolle

1. Die Kopftrommelbürste ausbauen (siehe Abb. 2-58).
2. Eine (1) Mutter entfernen und die Zwischenrolle herausziehen (siehe Abb. 2-60).

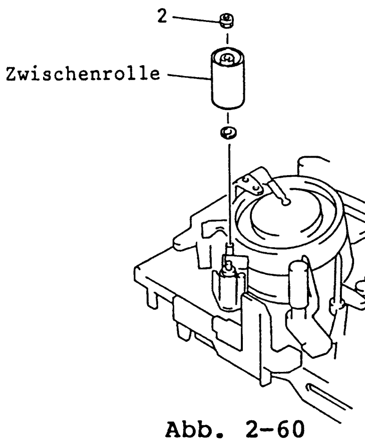


Abb. 2-60

3-16 Ausbau des Andrukrollenarmes

1. Den Capstanmotorhalter entfernen (siehe Abb. 2-52, 2-53, 2-54).
2. Den Andruckrollenarm herausziehen (siehe Abb. 2-61).

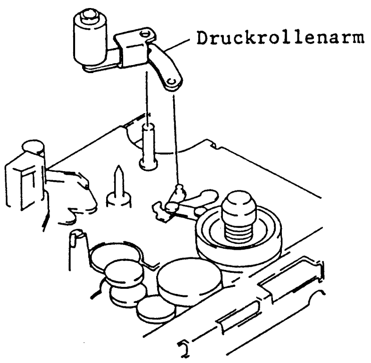


Abb. 2-61

3-17 Ausbau des Spannarmes und des Spannbandes

1. Den Cassettenhalter entfernen (siehe Abb. 2-29, 2-30, 2-31, 2-32, 2-33).
2. Eine (1) Scheibe entfernnen (siehe Abb. 2-62).
3. Die Spannfeder freigeben.
4. Eine (1) Befestigungsschraube des Spannarmes und des Spannbandes entfernen.

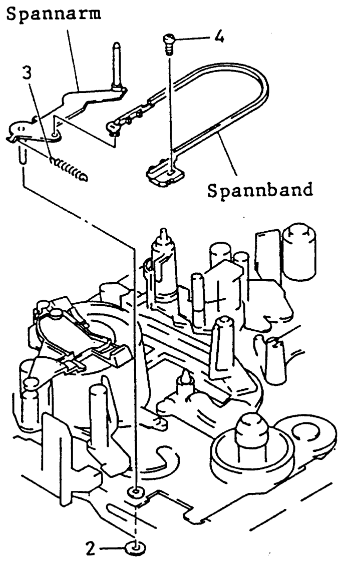


Abb. 2-62

3-18 Ausbau der Aufwickelteller-Hilfsbremse

1. Den Cassettenhalter ausbauen (siehe Abb. 2-29, 2-30, 2-31, 2-32, 2-33)
2. Die Feder der Aufwickelteller-Hilfsbremse entfernen (siehe Abb. 2-63).
3. Eine (1) Lasche freigeben.
4. Die Aufwickelteller-Hilfsbremse herausziehen.

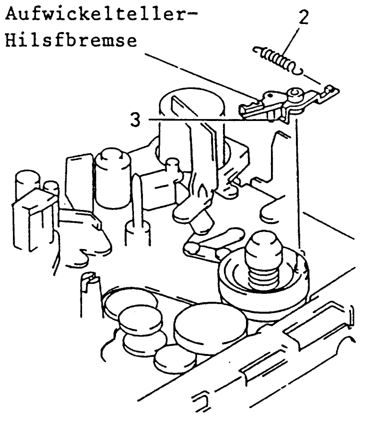


Abb. 2-63

3-19 Ausbau der Vorratsteller-Hilfsbremse

1. Den Cassettenhalter entfernen (siehe Abb. 2-29, 2-30, 2-31, 2-32, 2-33).
2. Die Feder der Vorratsteller-Hilsfbremse entfernen (siehe Abb. 2-64).
3. Eine (1) Laschen freigeben.
4. Die Vorratsteller-Hilfsbremse herausziehen.

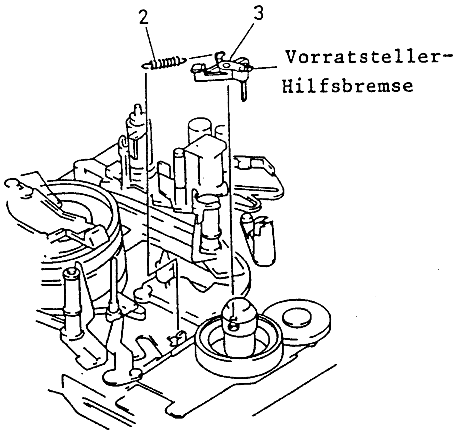


Abb. 2-64

3-20 Ausbau des Aufwickeltellers

1. Den Cassettenhalter entfernen (siehe Abb. 2-29, 2-30, 2-31, 2-32, 2-33).
2. Eine (1) Scheibe entfernen und den Aufwickelteller herausziehen (siehe Abb. 2-65).

Hinweis: Darauf achten, daß die Scheibe nicht verloren wird und in den unteren Abschnitt fällt.

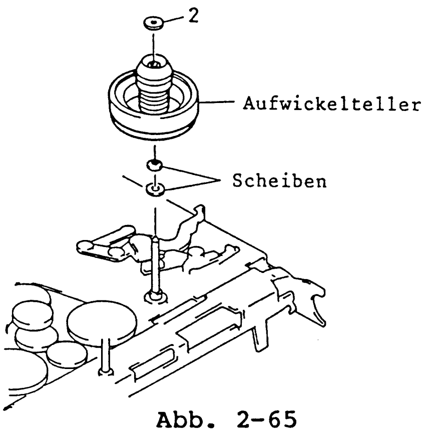

2
Aufwickelteller
Scheiben

Abb. 2-65

3-21 Ausbau des Vorratstellers

1. Den Cassettehalter entfernen (siehe Abb. 2-29, 2-30, 2-31, 2-32, 2-33).
2. Den Spannarm und das Spannband entfernen (siehe Abb. 2-62).
3. Die Vorratsteller-Hilfsbremse ausbauen (siehe Abb. 2-64).
4. Eine (1) Scheibe entfernen und den Vorratsteller herausziehen (siehe Abb. 2-66).

Hinweis: Darauf achten, daß die Scheibe nicht verloren wird und in den unteren Abschnitt fällt. Den Vorratsteller durch sinngemäße Umkehr der Ausbauvorgänge wieder einbauen.

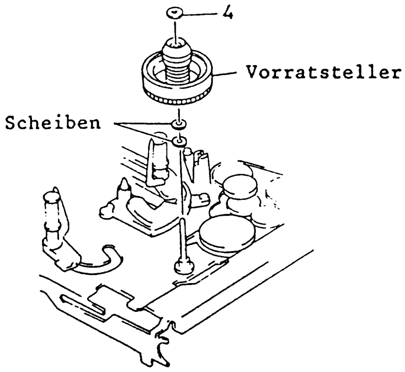

4
Vorratsteller
Scheiben

Abb. 2-66

3-22 Ausbau des Führungsstiftes (1) und (2)

1. Eine (1) Mutter entfernen, mit der der Führungsstift (1) festgehalten wird (siehe Abb. 2-67).
2. Eine (1) Mutter enfernen, mit der der Führungstsift (2) festgehalten wird.

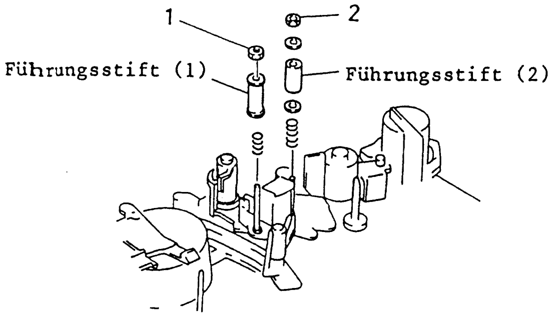

1
2
Führungsstift (1)
Führungsstift (2)

Abb. 2-67

3-23 Ausbau der Audio/Synchronkopf-Grundplatte und der Führungsarmeinheit

1. Den Audio/Synchronkopf entfernen (siehe Abb. 2-36, 2-37).
2. Eine (1) Mutter lösen und die Audio/Synchronkopf-Grundplatte gemeinsam mit den Scheiben und der Feder abnehmen (siehe Abb. 2-68).
3. Eine (1) Scheibe entfernen und die Fürhungsarmeinheit herausziehen.

Hinweis: Nach dem Wiedereinbau den Audio/Synchronkopf einstellen.

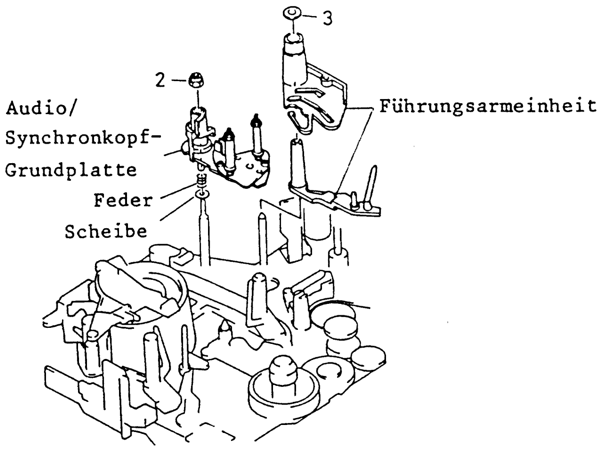

3
2
Audio/
Synchronkopf-
Grundplatte
Führungsarmeinheit
Feder
Scheibe

Abb. 2-68

3-24 Ausbau der Vorratsteller-Führungsrolle und der Aufwickelteller-Führungsrolle

1. Eine (1) Sechskantschraube entfernen, mit der die Vorratsteller-Führungsrolle festgehalten wird (siehe Abb. 2-69).
2. Das Oberteil der Vorratsteller-Führungsrolle mit einem Sechskantschlüssel drehen, um die Vorratsteller-Führungsrolle von der Vorratsteller-Führungsrollen-Grundplatte abzunehmen.
3. Die Führungsrollenkappe abnehmen.
4. Eine (1) Sechskantschraube entfernen, mit der die Aufwickelteller-Führungsrolle befestigt ist.
5. Das Oberteil der Aufwickelteller-Führungsrolle mit einem Sechskantschlüssel drehen, um die Aufwickelteller-Führungrolle von der Aufwickelteller-Führungsrollen-Grundplatte zu entfernen.

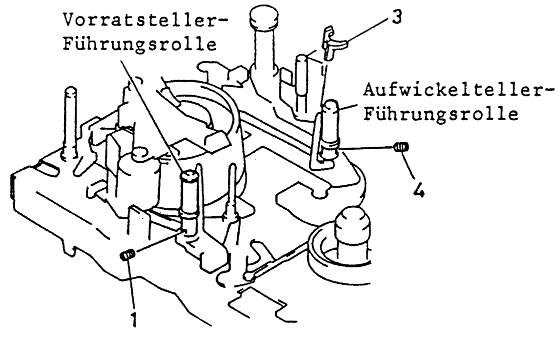

Vorratsteller-
Führungsrolle
3
Aufwickelteller-
Führungsrolle
4
1

Abb. 2-69

3-25 Ausbau der Nockenzahnradplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Drähte von dem Drahthalter freigeben (siehe Abb. 2-70).
4. Die Riemenabdeckung abnehmen.
5. Fünf (5) Befestigungsschrauben der Nockenzahnradplatte abnehmen.

Hinweis: Beim Wiedereinbau alle Schrauben festziehen und danach um 3/4 Drehung lösen.

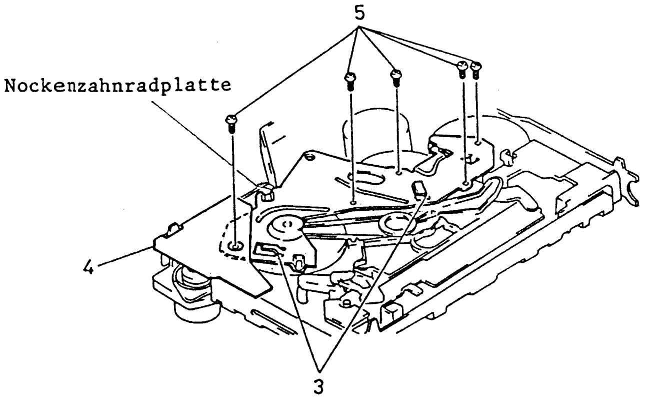

5
Nockenzahnradplatte
4
3

Abb. 2-70

3-26 Ausbau des Capstan-Schwungrades

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Zwei (2) Riemen von dem Capstan-Schwungrad abnehmen (siehe Abb. 2-71).
5. Eine (1) Scheibe entfernen und das Capstan-Schwungrad herausziehen.

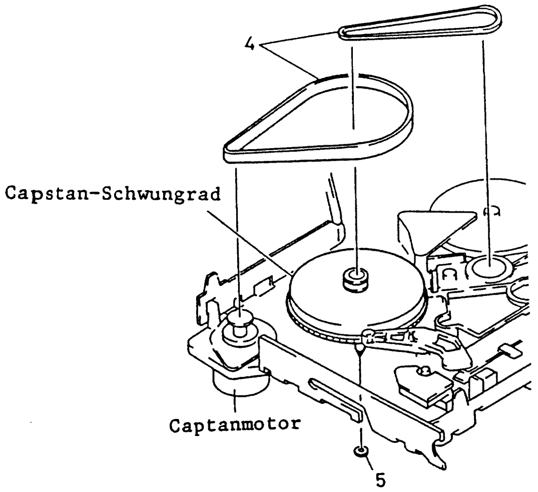

4
Capstan-Schwungrad
Captanmotor
5

Abb. 2-71

3-27 Ausbau des Audio/Synchronkopf-Betätigungsarmes

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11)
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Audio/Synchronkopf-Betätigungsarm herausziehen (siehe Abb. 2-72).

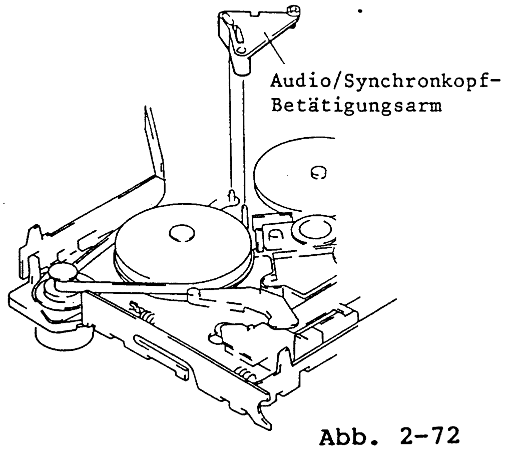

Audio/Synchronkopf-Betätigungsarm

Abb. 2-72

3-28 Ausbau des Wiedergabe/Aufnahme-Antriebsarmes

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Eine (1) Scheibe entfernen und den Wiedergabe/Aufnahme-Antriebsarm herausziehen (siehe Abb. 2-73).

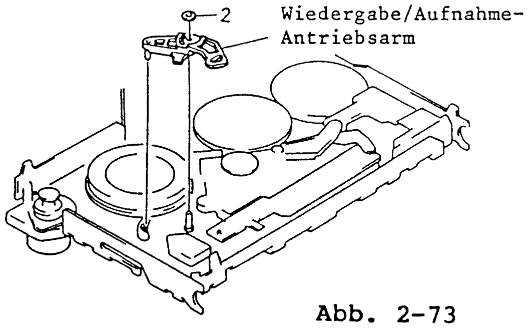

2
Wiedergabe/Aufnahme-Antriebsarm

Abb. 2-73

3-29 Ausbau der Nockenzahnradarme (1) und (2)

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Eine (1) Lasche freigeben und den Zwischenrollen-Betätigungsarm entfernen (siehe Abb. 2-74).
5. Den Nockenzahnradarm (1) und (2) herausziehen.

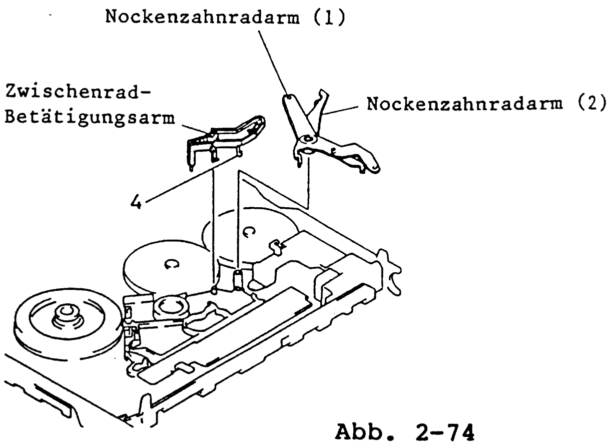

Nockenzahnradarm (1)
Zwischenrad-Betätigungsarm
Nockenzahnradarm (2)
4

Abb. 2-74

3-30 Ausbau der Vorratsteller- und Aufwickelteller-Ladenockenzahnräder

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Den Lademotorblock entfernen (siehe Abb. 2-55, 2-56).
4. Die Nockenzahnradplatte entferen (siehe Abb. 2-70).
5. Den Audio/Synchronkopf-Betätigungsarm entfernen (siehe Abb. 2-72).
6. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
7. Das Ladenockenzahnrad drehen, um die Führungsrolle in den Ladestauts zu bringen (siehe Abb. 2-75).
8. Einen (1) E-Ring entfernen (siehe Abb. 2-76).
9. Zwei (2) E-Ringe entfernen und die Ladenockenzahnräder herausziehen (siehe Abb. 2-75).

Hinweis: Nach dem Wiedereinbau der Ladenockenzahnräder, den Bandlaufwerk-Statusschalter einstellen.

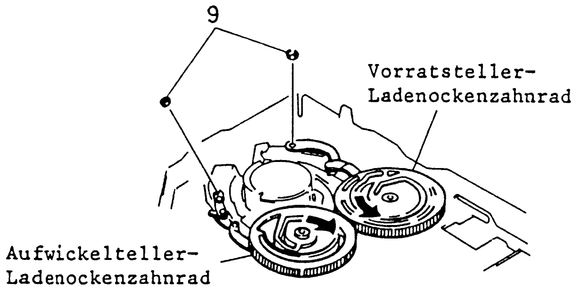


Abb. 2-75

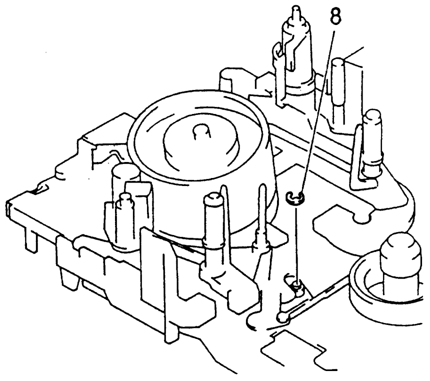


Abb. 2-76

3-31 Ausbau der Vorratsteller- und Aufwickelteller-Führungsrollen-Grundplatte

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter ausbauen (siehe Abb. 2-48, 2-49).
3. Den Lademotorblock entfernen (siehe Abb. 2-55, 2-56).
4. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
5. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
6. Das Ladenockenzahnrad ausbauen (siehe Abb. 2-75, 2-76).
7. Eine (1) Befestigungsschraube der Grenzplatte und der Vorratsteller-Führungsrollen-Grundplatte entfernen (siehe Abb. 2-77).
8. Eine (1) Befestigungsschraube der Grenzplatte und der Aufwickelteller-Führungsrollen-Grundplatte entfernen.

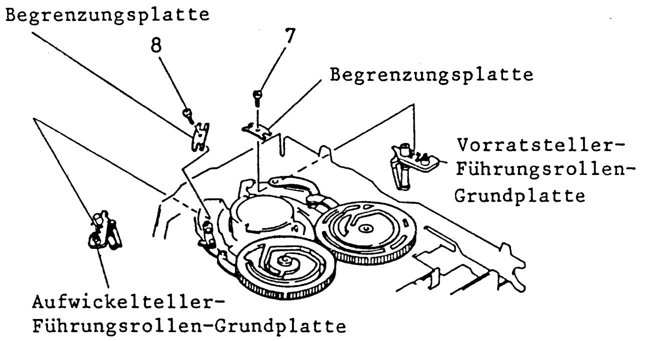


Abb. 2-77

3-32 Ausbau des Gleitstücks

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Wiedergabe/Aufnahme-Antriebsarm entfernen (siehe Abb. 2-73).
5. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
6. Eine (1) Schraube und eine (1) Scheibe entfernen, mit welchen das Gleitstück befestigt ist (siehe Abb. 2-78).

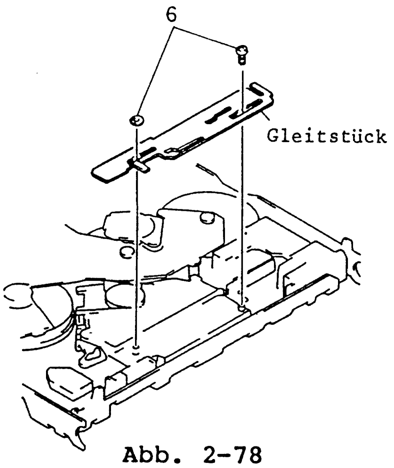


Abb. 2-78

3-33 Ausbau des Wickelteller-Zahnradblocks

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Wiedergabe/Aufnahme-Antriebsarm entfernen (siehe Abb. 2-73).
5. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
6. Das Gleitstück ausbauen (siehe Abb. 2-78).
7. Den Riemen von dem Wickelteller-Zahnradblock abnehmen (siehe Abb. 2-79).
8. Drei (3) Befestigungsschrauben des Wickelteller-Zahnradblocks abnehmen.

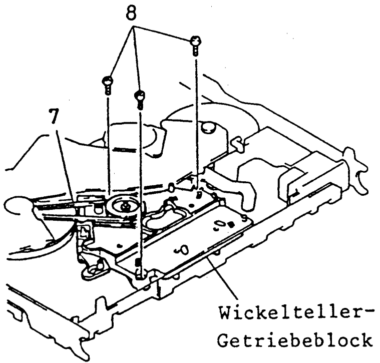


Abb. 2-79

3-34 Ausbau des Hauptbremsarmes

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Wiedergabe/Aufnahme-Antriebsarm entfernen (siehe Abb. 2-73).
5. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
6. Das Gleitstück entfernen (siehe Abb. 2-78).
7. Den Wickelteller-Zahnradblock ausbauen (siehe Abb. 2-79).
8. Den Hauptbremsen-Antriebsarm herausziehen (siehe Abb. 2-80).

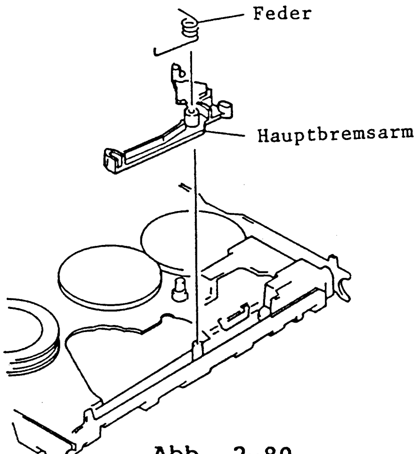


Abb. 2-80

3-35 Ausbau des Dämpfers

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Eine (1) Befestigungsschraube des Dämpfers entfernen (siehe Abb. 2-81).

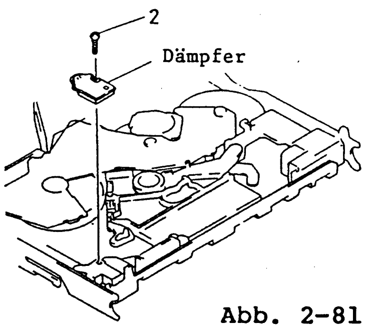


Abb. 2-81

3-36 Ausbau des Hochgleitstücks

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11).
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Wiedergabe/Aufnahme-Antriebsarm entfernen (siehe Abb. 2-73).
5. Die Nockenzahnradarme (1) und (2) entfernen (siehe Abb. 2-74).
6. Das Gleitstück ausbauen (siehe Abb. 2-78).
7. Den Dämpfer ausbauen (siehe Abb. 2-81).
8. Die Hochgleitfeder ausbauen (siehe Abb. 2-82).
9. Eine (1) Befestigungsschraube des Verriegelungshalters entfernen.
10. Das Hochgleitstück in Pfeilrichtung entfernen.

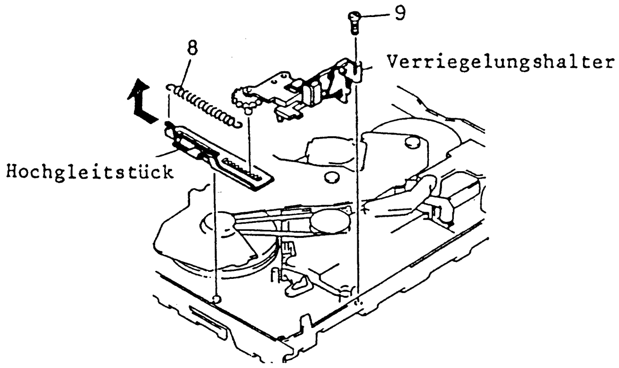


Abb. 2-82

3-37 Ausbau des Aufwickeltellersensors und des Cassettenhalterschalters

1. Die Haupt-Leiterplatte öffnen (siehe Abb. 2-11)
2. Den Bandlaufwerk-Statusschalter entfernen (siehe Abb. 2-48, 2-49).
3. Die Nockenzahnradplatte entfernen (siehe Abb. 2-70).
4. Den Wiedergabe/Aufnahme-Antriebsarm entfernen (siehe Abb. 2-73).
5. Das Gleitstück entfernen (siehe Abb. 2-78).
6. Den Dämpfer entfernen (siehe Abb. 2-81).
7. Das Hochgleitstück entfernen (siehe Abb. 2-82).
8. Den Stecker CN904 abziehen (siehe Abb. 2-83).
9. Die Drähte von dem Drahthalter freigeben.
10. Eine (1) Befestigungsschraube von dem Cassettenhalterschalter entfernen (siehe Abb. 2-84).
11. Eine (1) Befestigungsschraube von dem Aufwickeltellersensor entfernen.

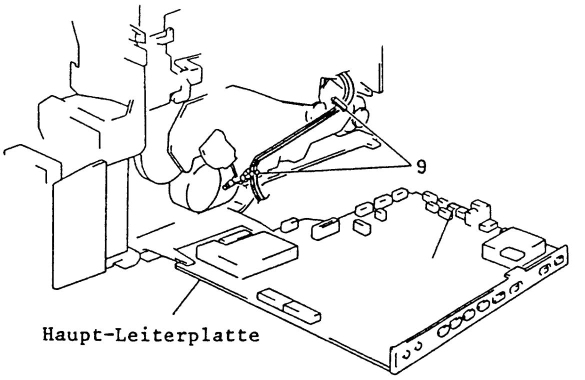


Abb. 2-83

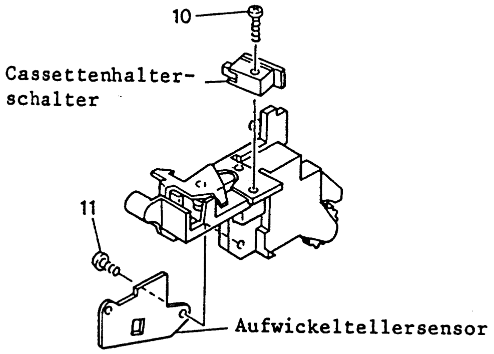

10
Cassettenhalter-schalter
11
Aufwickeltellersensor

Abb. 2-84

4. Objektivblock

Die früher beschriebenen Abdeckungen entfernen.

4-1 Ausbau des Objektivblocks

1. Die Prozeß-Leiterplatte entfernen (siehe Abb. 2-15, 2-16).
2. Die Schnittstellen-Leiterplatte entfernen (siehe Abb. 2-17).
3. Den EVF-Stecker abziehen (siehe Abb. 2-18, 2-19).
4. Die Sensor-Leiterplatte entfernen (siehe Abb. 2-20, 2-21, 2-22, 2-23).
5. Zwei (2) Schrauben entfernen und das Abschirmungsgehäuse herausnehmen (siehe Abb. 2-85).

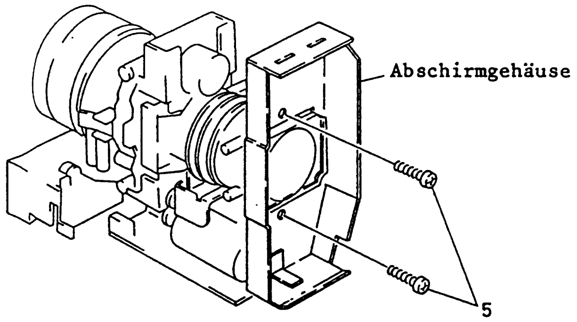

Abschirmgehäuse
5

Abb. 2-85

4-2 Ausbau der Autofokus-Leiterplatte

1. Den Objektivblock entfernen (siehe Abb. 2-85)
2. Den Stecker CN1A abziehen und zwei (2) Schrauben entfernen, um die Autofokus-Leiterplatte zu öffnen (siehe Abb. 2-86).
3. Zwei (2) Stecker (CN2A, CN3A) abziehen und die Autofokus-Leiterplatte entfernen (siehe Abb. 2-87).

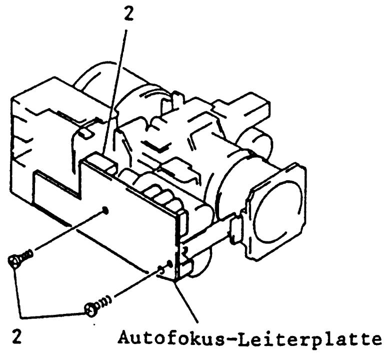

2
2
Autofokus-Leiterplatte

Abb. 2-86

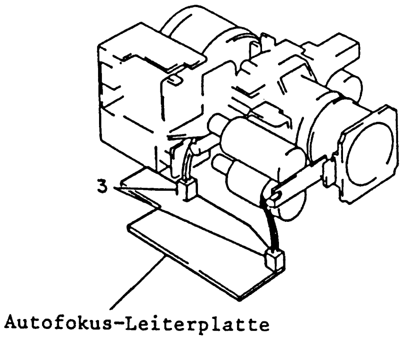

3
Autofokus-Leiterplatte

Abb. 2-87

4-3 Ausbau des Irisblendenblocks

1. Den Objektivblock entfernen (siehe Abb. 2-85).
2. Eine (1) Schraube entfernen und den Irisblendenblock hochheben (siehe Abb. 2-88).

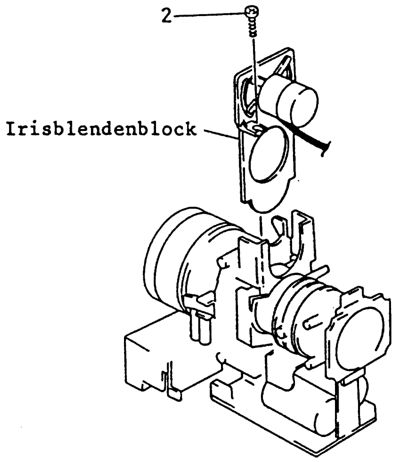

2
Irisblendenblock

Abb. 2-88

4-4 Ausbau des Zoommotors

1. Den Objektivblock entfernen (siehe Abb. 2-85).
2. Eine (1) Schraube entfernen und den Zoommotor in Pfeilrichtung herausziehen (siehe Abb. 2-89).

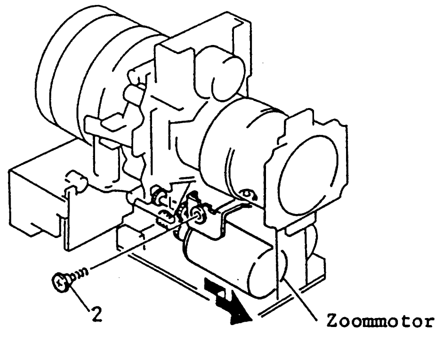

2
Zoommotor

Abb. 2-89

4-5 Ausbau des Autofokusmotors

1. Den Objektivblock entferen (siehe Abb. 2-85).
2. Den Stecker CN3A abziehen (siehe Abb. 2-90).
3. Eine (1) Schraube entfernen und den Autofokusmotor in Pfeilrichtung herausziehen.

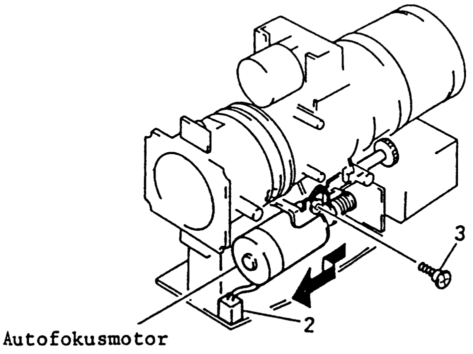

3
2
Autofokusmotor

Abb. 2-90

5. Elektronischer Sucher (EVF)

Den elektronischen Sucher entfernen, wie es früher beschrieben wurde.

5-1 Ausbau der Bodenplatte

1. Eine (1) Schraube entfernen und den EVF-Kabelhalter herausnehmen (siehe Abb. 2-91).
2. Zwei (2) Befestigungsschrauben der Bodenplatte entfernen.
3. Die Bodenplatte in Pfeilrichtung entfernen.

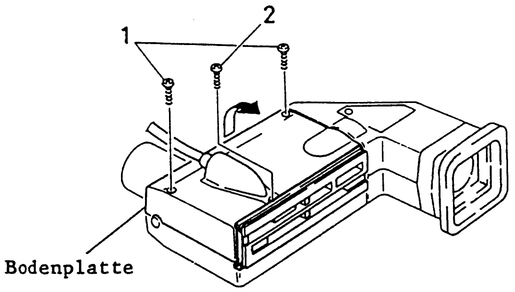

1
2
Bodenplatte

Abb. 2-91

5-2 Ausbau der Mikrofonbuchse

1. Die Bodenplatte entfernen (siehe Abb. 2-91).
2. Die Mikrofonbuchse in Pfeilrichtung anheben (siehe Abb. 2-92).
3. Den Stecker CN830 abziehen.

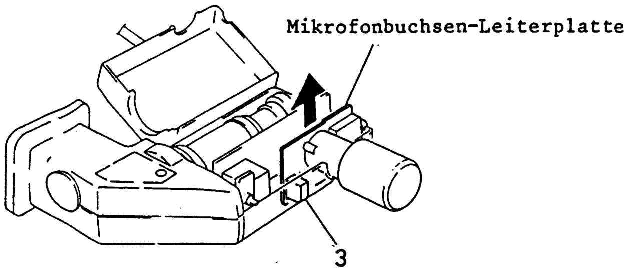

Mikrofonbuchsen-Leiterplatte
3

Abb. 2-92

5-3 Ausbau der Leiterplatte des elektronischen Suchers

1. die Bodenplatte ausbauen (siehe Abb. 2-91).
2. Die Mikrofonbuchsen-Leiterplatte entfernen (siehe Abb. 2-92)
3. Die Fassung der Kathodenstrahlröhre abtrennen (siehe Abb. 2-93).
4. Die EVF-Leiterplatte in Pfeilrichtung anheben.
5. Zwei (2) Stecker (CN801, CN802) abziehen (siehe Abb.2-94).

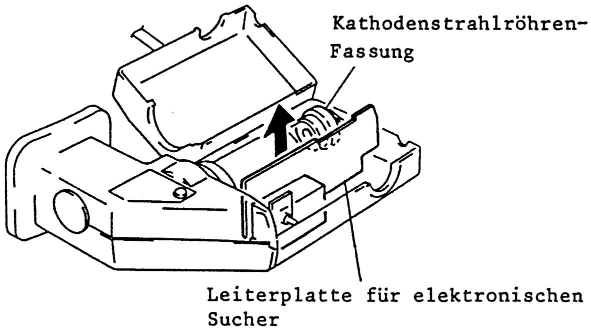

Kathodenstrahlröhren-Fassung
Leiterplatte für elektronischen Sucher

Abb. 2-93

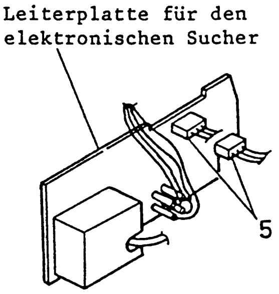

Leiterplatte für den elektronischen Sucher
5

Abb. 2-94

5-4 Ausbau der Kathodenstrahlröhre

1. Die Bodenplatte entfernen (siehe Abb. 2-91).
2. Die Mikrofonbuchsen-Leiterplatte entfernen (siehe Abb. 2-92).
3. Die EVF-Leiterplatte entfernen (siehe Abb. 2-93, 2-94).
4. Den Kathodenstrahlröhren-Deckel in Pfeilrichtung öffnen (siehe Abb. 2-95).
5. Eine (1) Schraube entfernen und den Prismadeckel abnehmen.
6. Die Kathodenstrahlröhre in Pfeilrichtung entfernen (siehe Abb. 2-96).

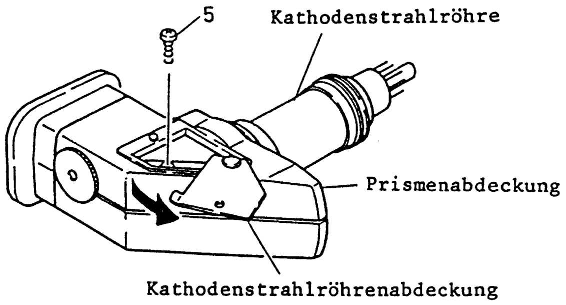

5
Kathodenstrahlröhre
Prismenabdeckung
Kathodenstrahlröhrenabdeckung

Abb. 2-95

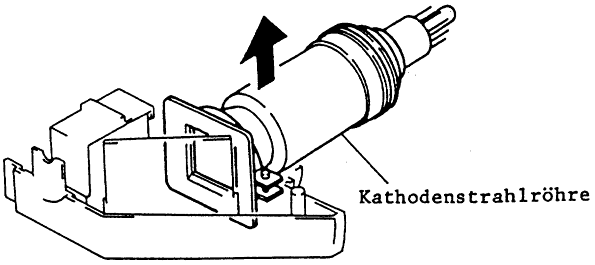
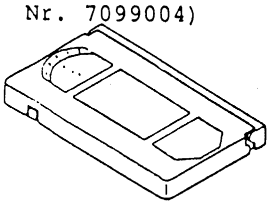
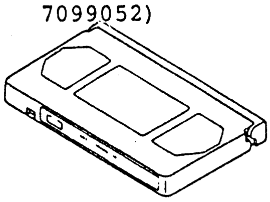
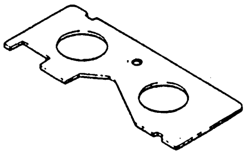
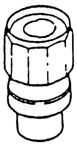
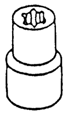
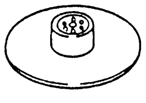
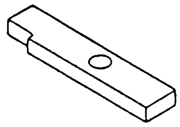
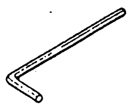
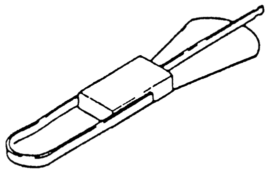
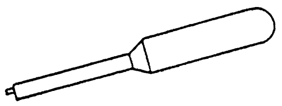
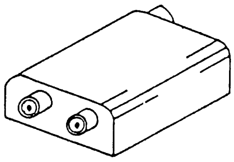
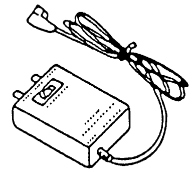
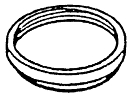

Kathodenstrahlröhre

Abb. 2-96

Wartungsvorrichtungen und -werkzeuge

1. Rückspannungsmesser (Teil-Nr. 7099004) 	2. Abgleichband (Teile-Nr. 7099052) 	3. Hauptmeßlehre (Teile-Nr. 7099279) 	4. Drehmomentmesser (Teile-Nr. 7099039) 
5. Adapter für Drehmomentmesser (Teile-Nr. 7099204) 	6. Blindteller (Teile-Nr. 7099043) 	7. Wickelteller-Höhenmeßlehre (Teile-Nr. 7099038) 	8. 1,5 mm/0,9 mm Sechskantschlüssel 
9. Spannungsmesser 	10. Rückfokus-Einstelldreher (Teile-Nr. 7099205) 	11. A/V-Eingangsadapter (VM-CH20) 	12. HF-Konvertereinheit (VM-RF50 oder VM-RF20) 
13. Lichtausgleichsfilter (Teile-Nr. C2: 7099225) (Teile-Nr. C8: 7099223) 			

Kapitel 3 Mechanische Einstellungen

1. Bandlaufwerk-Statusschalter

1-1 Ladenockenzahnrad (Vorratsteller/Aufwickelteller) (Abb. 3-1)

Unbedingt diese Einstellung nach dem Austausch des Ladenockenzahnrades (Vorratsteller/Aufwickleteller) durchführen, bevor der Bandlaufwerk-Statusschalter eingestellt wird.

1. Den Bandlaufwerk-Statusschalter so einbauen, daß die Markierungen an den Vorratsteller- und Aufwickelteller-Ladenockenzahnrädern im Entlade-Stoppmodus ausgerichtet sind.

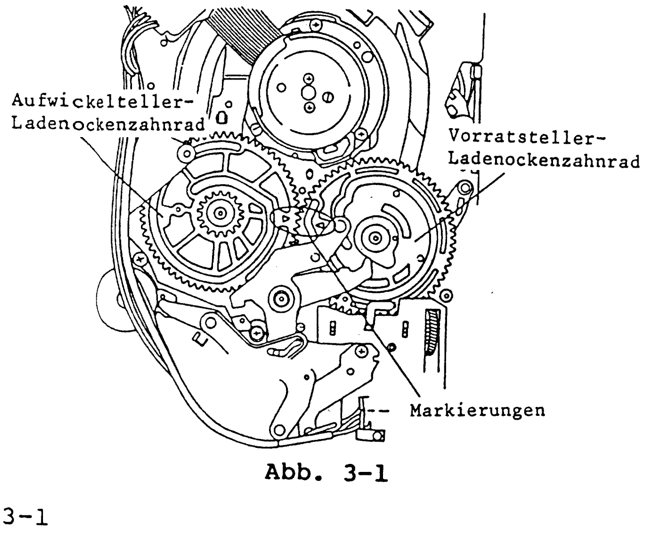

Aufwickelteller-Ladenockenzahnrad
Vorratsteller-Ladenockenzahnrad
Markierungen

Abb. 3-1

1-2 Bandlaufwerk-Statusschalter (Abb. 3-2)

Unbedingt diese Einstellung ausführen, nachdem der Bandlaufwerk-Statusschalter und die Ladenockenzahnräder (Vorratsteller/Aufwickleteller) ausgetauscht wurden.

1. Die Markierungen A und B an der Rückseite des Bandlaufwerk-Statusschalters ausrichten.
2. Darauf achten, daß die Markierungen an den Vorratsteller- und Aufwickelteller-Nockenzahnrädern ausgerichtet sind, wenn das Gerät auf den Entlade-Stoppmodus geschaltet ist.
3. Den Bandlaufwerk-Statusschalter an der Nockenzahnradplatte anbringen.

4. Darauf achten, daß die Markierungen auf dem Vorratsteller-Ladenockenzahnrad und der Nockenzahnradplatte nach dem Entladen in dem Stoppmodus ausgerichtet sind.

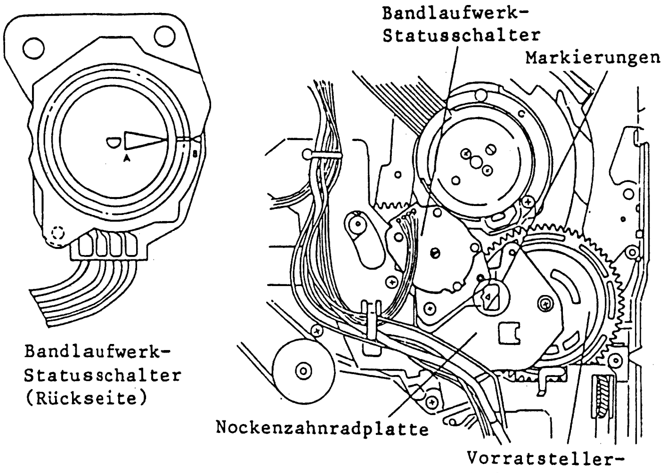

Bandlaufwerk-Statusschalter
Markierungen
Bandlaufwerk-Statusschalter (Rückseite)
Nockenzahnradplatte
Vorratsteller-Ladenockenzahnrad

Abb. 3-2

2. Prüfen/Einstellen der Teile des Bandtransportes

Der Bandtransport ist der Abschnitt von dem Vorratsteller über die Videoköpfe zu dem Aufwickelteller. Die Teile des Bandtransportes und besonders die mit dem Band in Berührung kommenden Teile müssen sauber und frei von Staub, Öl usw. gehalten werden. Das Bandtransportsystem wurde werksseitig vor dem Versand eingestellt, so daß bei Austausch von Teilen ein stabiler Bandtransport erhalten wird, wenn nur die neuen Teile richtig eingestellt werden.

2-1 Wickelteller-Höheneinstellung (Abb. 2-3)

1. Den Kassettenfachdeckel und das linke Gehäuse ausbauen und die Hauptmeßlehre auf dem Kassettenhalter anbringen.
2. Die Wickelteller-Höhenmeßlehre auf der Hauptmeßlehre anbringen und an den Wickelteller anlegen.
3. Darauf achten, daß die Oberkante des Wickeltellers zwischen den Abschnitten A und B der Wickelteller-Höhenmeßlehre angeordnet ist.
4. Falls die Oberkante des Wickeltellers nicht zwischen den Abschnitten A und B angeordnet ist, die Anzahl der Einstellscheiben (2 Typen: 0,25 mm und 0,50 mm dick) an der Unterseite des Wickeltellers einstellen.

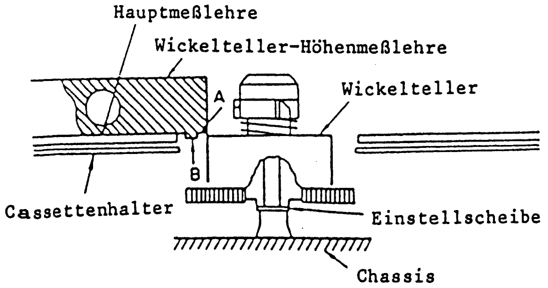

Hauptmeßlehre
Wickelteller-Höhenmeßlehre
A
Wickelteller
B
Cassettenhalter
Einstellscheibe
Chassis

Abb. 3-3

2-2 Position/Spannung der Spannstife (Abb. 3-4)

Positionseinstellung (Abb. 3-4)

1. Die Spannfeder auf dem Federhalter auf Position "C" stellen.
2. Die Vorratsteller-Sensorfotozelle in der Mitte an der linken Seite des Bandlaufwerkes abdecken.
3. Das Gerät auf den Wiedergabemodus schalten.
4. Nach Beendigung des Ladens, die Befestigungsschraube des Spannbandhalters lösen. Danach den Halter verschieben und so einstellen, daß das Spiel zwischen dem Abschnitt A des Vorratsteller-Bandendensensorhalters und des Spannarmes 1,4 bis 2,0 mm beträgt.
5. Die Schraube wieder festziehen, um die Einstellung zu sichern.

Spannungseinstellung (Abb. 3-4)

1. Das Rückspannungseinstellband in das Gerät einsetzen.
2. Das Gerät auf den Wiedergabemodus schalten.
3. Die Skale auf dem Vorratsteller ablesen.
4. Diese Anzeige solte zwischen 27 und 38 sein.
5. Die Spannarmfeder auf Position "A" oder "B" auf dem Federhalter bewegen, wenn das Spanungseinstellband 39 oder mehr anzeigt, bzw. auf die Position "D" oder "E" am Federhalter, wenn die Anzeige 26 oder weniger beträgt. Die Rückspannung auf einen Nominalwert von 27 - 38 auf der Skala einstellen.
6. Die Position des Spannarmes nochmals kontrollieren, wenn die Rückspannung stark geändert wurde (5 oder mehr).

Hinweis: Das Gerät muß für diese Einstelleung waagerecht aufgestellt sein.

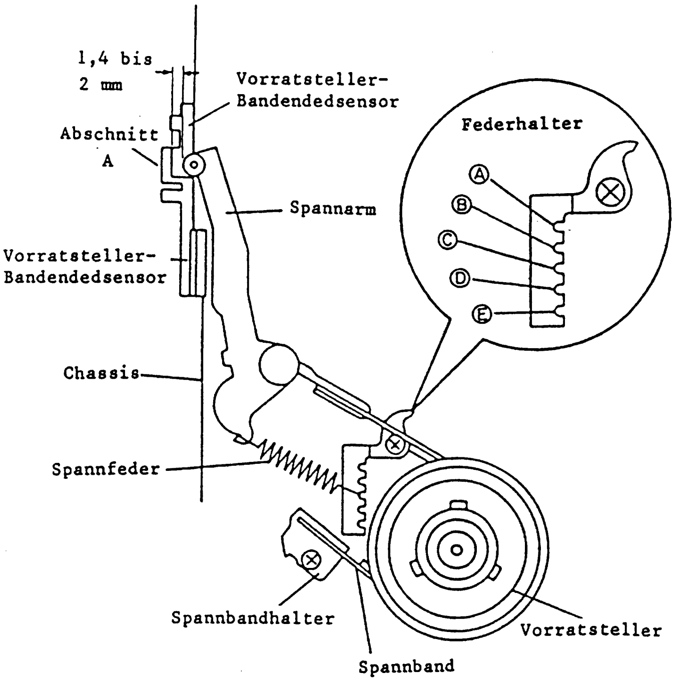

1,4 bis 2 mm
Vorratsteller-Bandendedsensor
Abschnitt A
Federhalter
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Spannarm
Vorratsteller-Bandendedsensor
Chassis
Spannfeder
Spannbandhalter
Vorratsteller
Spannband

Abb. 3-4

2-3 Gesamtlöschkopf-Führungsstifthöhe (Abb. 3-5)

1. Den Kassettenschachtdeckel und das linke Gehäuse abnehmen und die Hauptmeßlehre auf dem Kassettenhalter anbringen.
2. Die Wickelteller-Höhenmeßlehre auf der Hauptmeßlehre anbringen und an den Gesamtlöschkopf-Führungsstift anlegen.
3. Die Gesamtlöschkopf-Führungstift-Höheneinstellmutter so drehen, daß der Abstand zwischen dem oberen Flansch des Gesamtlöschkopf-Führungsstiftes und der Oberkante der Höhenmeßlehre 0,5 bis 1,5 mm beträgt.
4. Eine Leer-Kassette laden, diese laufen lassen und darauf achten, daß das Band nicht an dem oberen oder unteren Flansch des Gesamtlöschkopf-Führungsstiftes übersteht.

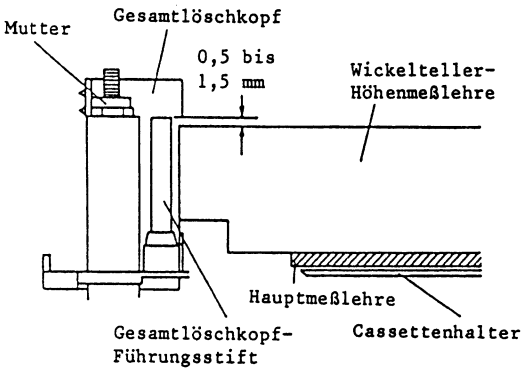

Mutter
Gesamtlöschkopf
0,5 bis 1,5 mm
Wickelteller-Höhenmeßlehre
Hauptmeßlehre
Gesamtlöschkopf-Führungsstift
Cassettenhalter

Abb. 3-5

2-4 Aufwickelteller-Führungsstifthöhe (Abb. 3-6)

1. Den Kassettenschachtdeckel und das linke Gehäuse entfernen und die Hauptmeßlehre auf dem Kassettenhalter anbringen.
2. Die Wickelteller-Höhenmeßlehre auf der Hauptmeßlehre anbringen und an den Aufwickelteller-Führungsstift anlegen.
3. Die Aufwickelteller-Fürhungstift-Höheneinstellmutter so drehen, daß der Abstand zwischen dem oberen Flansch des Aufwickelteller-Führungsstiftes und der Oberkante der Höhenmeßlehre 0,1 mm ±0,1 mm beträgt.
4. Eine Leer-Kassette einlegen, laufen lassen und kontrollieren, daß das Band nicht an dem oberen oder unteren Flansch des Stiftes übersteht.

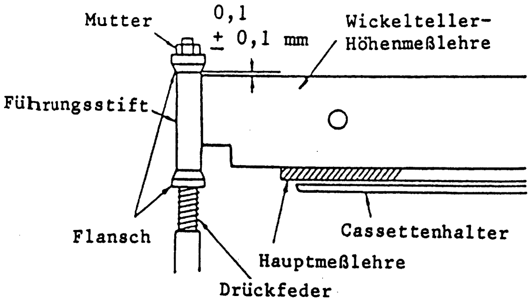

Mutter
0,1 ± 0,1 mm
Wickelteller-Höhenmeßlehre
Führungsstift
Flansch
Cassettenhalter
Hauptmeßlehre
Drückfeder

Abb. 3-6

2-5 Führungsrollenhöhe (Abb. 3-7, 3-8)

1. Den Kassetteschachtdeckel und das linke Gehäuse entfernen und die Hauptmeßlehre auf dem Kassettenhalter anbringen.
2. Die Wickelteller-Höhenmeßlehre auf der Hauptmeßlehre anbringen und an die Fürhrunsgrolle anlegen.
3. Die Fürhungsrollen-Befestigungsschraube an der Position festziehen, an der der obere Flansch der Führungsrolle und die Oberkante der Höhenmßlehre übereinstimmen.
4. Das Band laufen lassen und kontrollieren, daß es keine Falten bildet und auch nicht auf dem Flansch läuft; danach die elektrischen Abgleiche ausführen.
5. Ein Oszilloskop an TP206 auf der Haupt-Leiterplatte anschließen.
6. Das Farbballen-Prüfband wiedergeben und den Spurlagenregler (RV101) in seine Raststellung bringen.
7. Darauf achten, daß die FM-Wellenform linear verläuft.
8. Danach sicherstellen, daß die FM-Abfälle am Beginn und am Ende der Hüllkurve gleich sind, wenn der Spurlagenregler nach rechts und links gedreht wird.
9. Falls die FM-Abfälle am Start und Ende der Hüllkurve nicht gleich sind, die Führungsrollen-Befestigungsschraube lösen und die Fürhungsrolle etwas nach links oder rechts drehen, bis die Abfälle gleich sind.
10. Die Befestigungsschraube wieder festziehen.

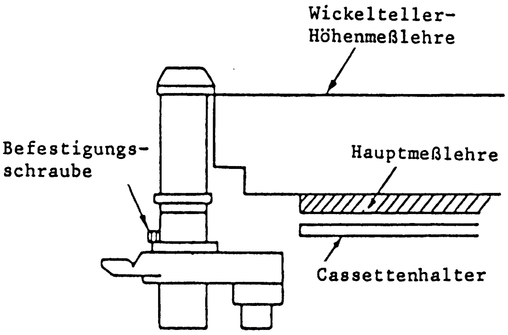

Wickelteller-Höhenmeßlehre
Befestigungs-schraube
Hauptmeßlehre
Cassettenhalter

Abb. 3-7

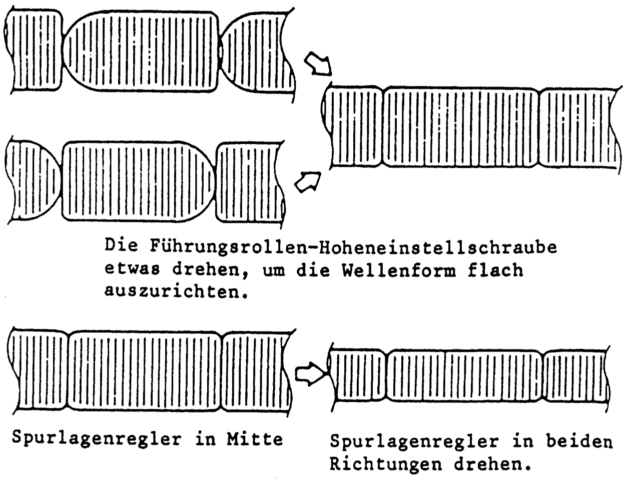

Die Führungsrollen-Hoheneinstellschraube etwas drehen, um die Wellenform flach auszurichten.
Spurlagenregler in Mitte
Spurlagenregler in beiden Richtungen drehen.

Abb. 3-8

2-6 Audio/Synchronkopf (Abb. 3-9, 3-10, 3-11)

Die Höhen-, Neigungs- und Azimuteinstellungen wiederholt ausführen, um die Einbauposition des Audio/Synchronkopf zu bestimmen, und danach den X-Wert einstellen.
Nachfolgend beschrieben sind die Vorgänge nach dem Auswechseln des Audio/Synchronkopfes; unbedingt die Feineinstelung nach der Grobeinstellung vornehmen.

Grobeinstellung (Abb. 3-9)

1. Den Kassettenschachtdeckel und das linke Gehäuse ausbauen, bevor die Einstellung ausgeführt wird.
2. Die Höhenmeßlehre in richtiger Position anbringen.
3. Die Azimut-Schraube (B), die Neigungs-Schraube (C) und die Schraube (F) so einstellen, daß die Höhendifferenz zwischen der Höhenmeßlehre und der Audio/Synchronkopf-Grundplatte (1) 0,4 mm beträgt und die Audio/Synchronkopf-Grundplatten (1) und (2) parallel angeordnet sind.

Feineinstellung (Abb. 3-9, 3-10)

4. Das Oszilloskop an den Audio-Ausgang der Haupt-Leiterplatte anschließen.
5. Das 6 kHz Audio-Signal von dem Abgleichband wiedergeben.
6. Die Azimut-Schraube (B) und die Neigungs-Schraube (C) auf maximalen Ausgang einstellen.

X-Wert-Einstellung (Abb. 3-9, 3-11)

7. Das Oszilloskop an TP206 der Haupt-Leiterplatte anschließen.
8. Das Oszilloskop bei SW25Hz triggern (TP205 auf der Haupt-Leiterplatte verwenden).
9. Den Spurlagenregler (RV101) in Raststellung bringen.

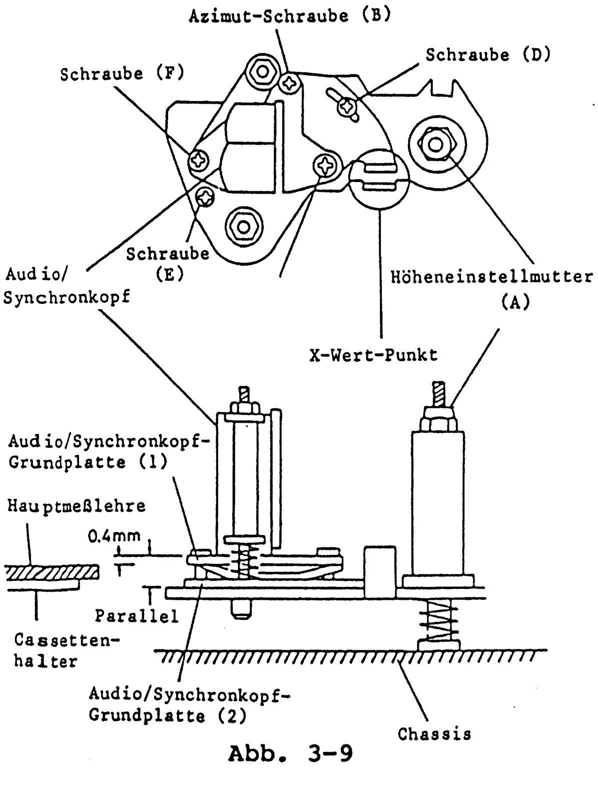

Azimut-Schraube (B)
Schraube (F)
Schraube (D)
Schraube (E)
Audio/
Synchronkopf
Höheneinstellmutter
(A)
X-Wert-Punkt
Audio/Synchronkopf-
Grundplatte (1)
Hauptmeßlehre
0.4mm
Parallel
Cassetten-
halter
Audio/Synchronkopf-
Grundplatte (2)
Chassis

Abb. 3-9

10. Die beiden (2) Schrauben (D und E) lösen.
11. Das Abgleichband wiedergeben.
12. Die Audio/Synchronkopf-Grundplatte vorsichtig in die entsprechende Richtung bewegen, bis maximaler Hüllkurven-Ausgang durch Einstellung des X-Wert-Punktes erzielt wird.
13. Die beiden (2) Schrauben (D und E) mit Sicherungslack sichern.

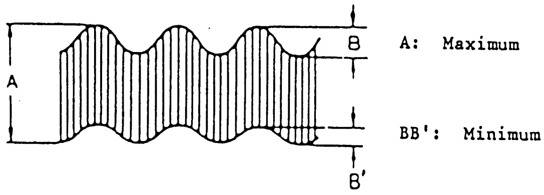

A
B
B'
A: Maximum
BB': Minimum

Abb. 3-10

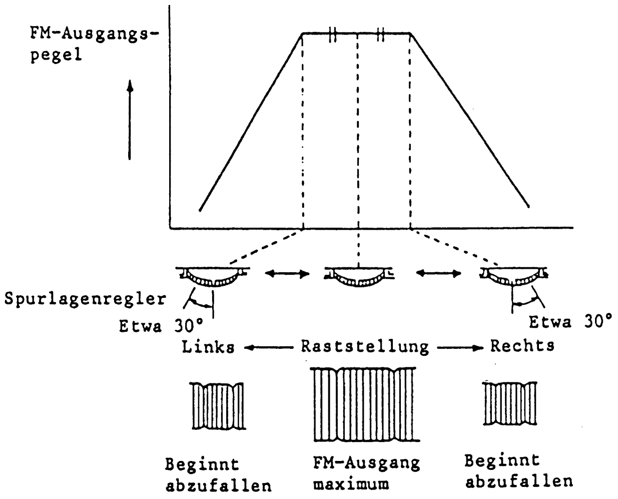

FM-Ausgangs-
pegel
Spurlagenregler
Etwa 30°
Etwa 30°
Links
Raststellung
Rechts
Beginnt
abzufallen
FM-Ausgang
maximum
Beginnt
abzufallen

Abb. 3-11

2-7 Einstellung nach dem Austausch der Kopftrommel (Abb. 3-12)

Wenn die Kopftrommel ausgetauscht wurde, kommt es zu einer Drift zwischen der relativen Höhe der Kopftrommel und der Führungsrolle; dadurch wird der X-Wert verändert, so daß der Bandtransport und das Servosystem eingestellt werden müssen. Das Ausdriften der relativen Höhe und des X-Wertes ist jedoch sehr gering, wenn die Kopftrommle normal ausgetauscht wird, so daß die Korrektur mittels elektrischem Abgleich erfolgen kann.

1. Darauf achten, daß es zu keinen Falten an der Führungsrolle kommt. Gegebenenfalls die Höhe der Führungsrolle einstellen.
2. Die Spurlagen-Voreinstellung ausführen (Servo-Abschnitt).
3. Den X-Wert einstellen (beschrieben unter "Einstellung des Audio/Synchronkopfes").
4. Den FM-Ausgang auf Linearität und Pegelschwankungen prüfen. Dieses Prüfverfahren ist später beschrieben.
5. Den Servo-Abschnitt und den Luminanz/Chroma-Abschnitt einstellen.
   * Kopfwechselpunkt
   * Aufnahme-Luminanzpegel
   * Aufnahme-Chromapegel

FM-Ausgang auf Linearität und Pegelschwankungen prüfen (Abb. 3-12)

1. Den Spurlagenregler (RV101) in seine Raststellung bringen.
2. Ein Oszilloskop an TP206 auf der Haupt-Leiterplatte anschließen.
3. Die Feineinstellung des Spannungspegelbereiches des Oszilloskops vornehmen und den FM-Ausgang auf vier Teilungen einstellen.
4. Den Spurlagenregler drehen, um die maximale Amplitude des FM-Ausgangs auf 3 Teilungen einzustellen.
5. Darauf achten, daß die minimale Amplitude mehr als 2 Teilungen ausmacht.

3. Prüfung der Spannungen und Drehmomente

Die Spannungen und Drehmomente in dem Bandtransportsystem müssen geprüft werden, um zufriedenstellenden Betrieb des Videorekorders sicherzustellen. Falls der Bandtransport nicht glatt abläuft oder eine ungewöhnliche Bandgeschwindigkeit vorliegt, anhand dieser Prüfungen die Fehlerursache festellen und das schadhafte Teil erneuertn.

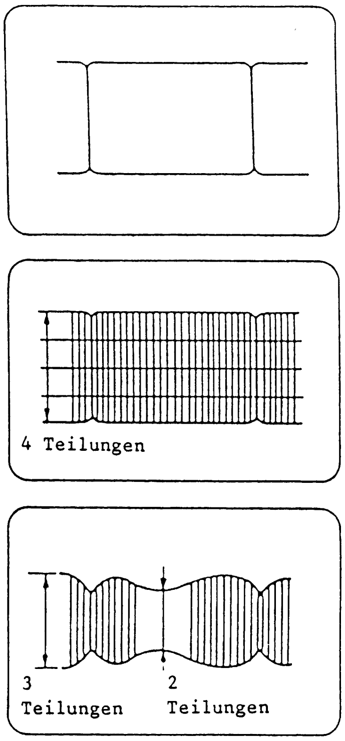


Abb. 2-12

Benennung	Operation	Wickelteller	Meßwert	Bemerkung
Hauptbremsmoment	Stop	Vorratsteller	100 g.cm oder mehr	Hinweis 1
		Aufwickelteller	80 g.cm oder mehr	
Bandspannungsmoment	Enladen	Vorratsteller	90-220 g.cm	Hinweis 1
Schnellvorlaufmoment	Schnellvorlauf	Aufwickelteller	400 g.cm oder mehr	Hinweis 1
Rücklaufmoment	Rücklauf	Vorratsteller	400 g.cm oder mehr	Hinweis 1
Aufwickelmoment	Wiedergabe	Aufwickelteller	80-110 g.cm	Hinweis 1
Rückspannmoment	Schnellvorlauf	Vorratsteller	4-10 g.cm	Hinweis 2
	Rücklauf	Aufwickelteller		

Hinweis 1: Dieser Wert wird mit Hilfe des Drehmomentmessers und des Adapters für den Drehmomentmesser gemessen, indem der Drehmomentmesser mit 0,8 Umdrehungne pro Sekunde bewegt wird. Das Hauptbremsmoment zeigt jedoch den Wert, wenn der Aufwickelteller im Uhrzeigersinn und der Vorratsteller gegen den Uhrzeigersinn mit einer Geschwindigkeit von 0,8 Umdrehungen pro Sekunde bewegt wird.

Hinweis 2: Dieser Wert wurde unter Verwendung des Blindtellers und des Spannungsmessers gemessen, wobei der Aufwickelteller gegen den Uhrzeigersinn und der Vorratsteller in dem Uhrzeigersinn gedreht werden, und zwar mit einer Geschwindigkeit von 50 mm/sek.

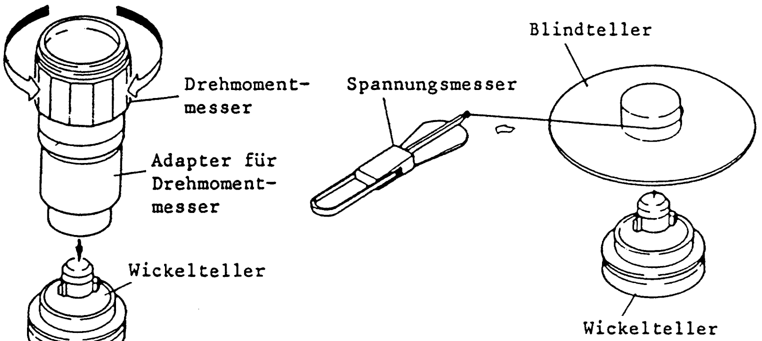


Abb. 2-13

Kapitel 4 Elektrische Abgleiche

1. Richtig Einstellung der VHS-Movie

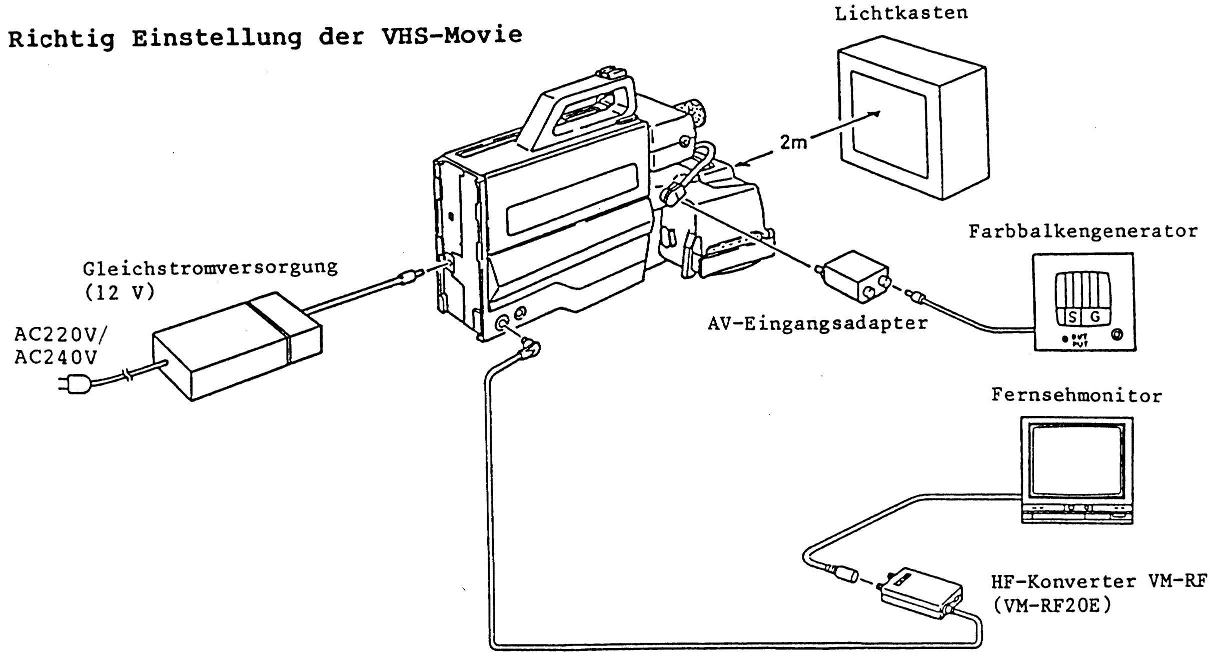


Abb.4-1 Richtige Einstellung der VHS-Movie

2. Kamera-Abschnitt

2-1 Anordnung der Leiterplatten

1. Prozeß-Leiterplatte
2. Sensor-Leiterplatte
3. Schnittstellen-Leiterplatte
4. Autofokus-Leiterplatte

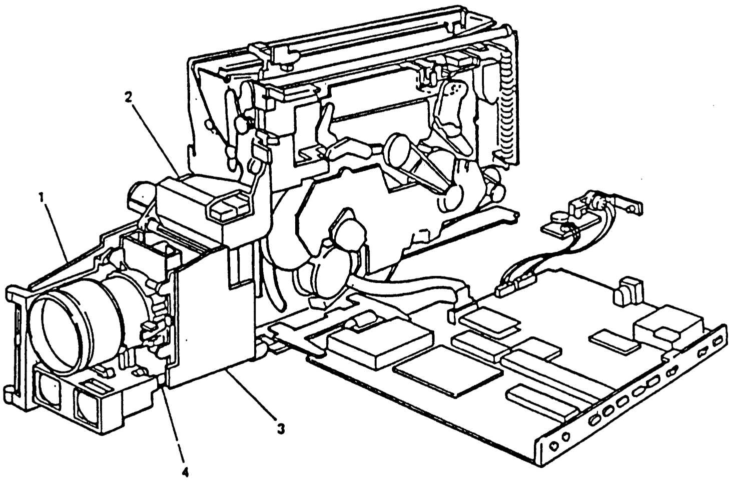


Abb. 4-2 Kamera-Abschnitt

2-2 Erforderliche Prüfeinrichtungen

Die folgenden Einrichtungen sind für die Abgleiche an der VHS-Movie erforderlich.

Oszilloskop (Doppelspur, 10:1 Probe)
(Vektorskop)
Digital-Voltmeter (DVM)
Frequenzzähler
Video-Farbmonitor
Grauwertskala
3100 Grad Kelvin Lichtkasten
Farbbalkendiagramm
Auflösungsdiagramm
Lichtmesser
Rückfokus-Diagramm
Gleichstromversorgung (12 V)
Rückfokus-Einstelldreher
Lichtausgleichsfilter C2
Lichtausgleichsfilter C8

2-3 Abgleichbedingungen

1) Darauf achten, daß der Videorekorder-Abschnitt richtig eingestellt wurde, bevor der Kamera-Abschnitt eingestellt wird.
2) Diese Gerät an eine Stromversorgung, einen Video-Farbmonitor usw. anschließen, wie es in Abb. 4-1 dargestellt ist.
3) Den Lichtkasten 2 m vor der Kamera (Objektivfläche) aufstellen, wenn nicht anders angegeben.
4) Die Kamera auf ein Diagramm richten, um das Bild auszufüllen, wenn nicht anders angegeben.
5) Die 10:1 Probe des Oszilloskops verwenden, wenn nicht anders angegeben.

2-4 Position der Regler und Schalter

OPERATE Schalter	Einschalten
VIDEO/CAM Schalter	Position CAM
IRIS Regler	Mittelposition
FOCUS Schalter	Position MAN
SHUTTER Schalter	Position NORMAL

2-5 Abgleich der Kamera

1) **Hilfsträgerfrequenz** (Abb. 4-52)
Mit diesem Abgleich wird die Frequenz des

Hilfsträgers eingestellt.

Testpunkt: TP102 Prozeß
Abgleich : CT101 (Fo ADJ) Prozeß
Anzeige : Ferquenzzähler

1. Den Frequenzzähler an TP102 anschließen.
2. CT101 für 4,433619 MHz ±20 Hz einstellen.

Hinweis: Vorsichtig verfahren, wenn der Einstelldreher an den CT101 angesetzt wird, da die Streukapazität die Frequenz ändern könnte.

2) **VCO-Verriegelung** (Abb. 4-52)

Testpunkt: TP101 Prozeß
Abgleich : CT102 (VCO LOCK) Prozeß (IC105)
Anzeige : Digital-Voltmeter

1. Das Digital-Voltmeter an den TP101 anschließen.
2. CT102 auf 3,2 V ±0,1 V einstellen.

Hinweis: Vorsichtig verfahren, wenn der Einstelldreher an den CT102 angesetzt wird, da die Streukapazität die Frequenz ändern könnte.

3) **Antriebsimpulsfrequenz** (Abb. 4-51)

Mit diesem Abgleich wird die Frequenz des Antriebsimpulses auf den spezifizierten Wert eingestellt.

Testpunkt: TP001 Sensor
Abgleich : CT001 (DRIVE CLOCK Fo) Sensor
Anzeige : Digital-Voltmeter

1. Das Digital-Voltmeter an TP001 anschließen.
2. CT001 auf 3,0 V ±1 V einstellen.

Hinweis: Vorsichtig verfahren, wenn der Einstelldreher an den CT001 angesetzt wird, da die Streukapazität die Spannung ändern könnte. Ein nichtmetallisches Einstellwerkzeug verwenden.

4) **Rückfokus** (Abb. 4-3, 4-4)

Der Zweck dieses Abgleiches ist richtige Fokussierung über den gesamten Zoombereich.

Abgleich: BACKFOCUS ADJUSTMENT POINT (BACKFOCUS LENS)
Anzeige : Video-Farbmonitor

1. Den Kamera-Abschnitt drei (3) Meter entfernt von dem Rückfokus-Diagramm aufstellen und das Objekt mit etwa 100 Lux ausleuchten.
2. Den Zoomring auf Weitwinkel und den Fokussierring auf drei (3) Meter stellen (siehe Abb. 4-3).
3. Die Sechskantschraube lösen (siehe Abb. 4-4).
4. Den Rückfokus-Einstelldreher an dem Rückfokus-Einstellpunkt einführen und auf optimalen Fokus einstellen.
5. Den Zoomring auf Teleobjektiv stellen und darauf achten, daß das Diagramm scharf abgebildet wird. Ist dies nicht der Fall, den Zoomring auf Weitwinkel stellen und den Vorgang in Schritt 4 wiederholen.
6. Darauf achten, daß das Diagramm sowohl bei Weitwinkel als auch bei Tele scharf abgebildet wird, wenn der Fokussierring auf drei (3) Meter eingestellt ist.

Hinweis: Nach der Einstellung ist die Sechskantschraube wieder festzuziehen und mit Sicherungslack zu sichern.

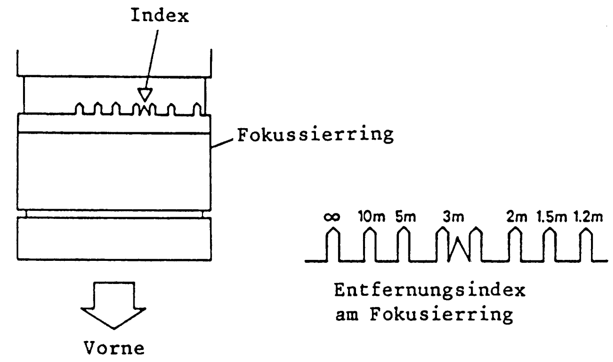


Abb. 4-3 Rückfokus-Einstellung

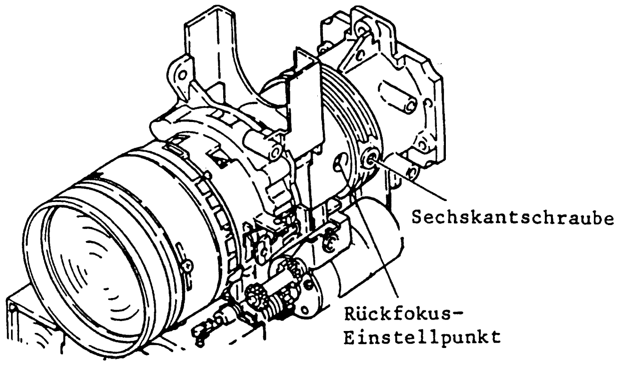


Abb. 4-4 Rückfokus-Einstellung

5) **Bildabschattung** (Abb. 4-5, 4-52)

Dieser Abgleich kompensiert für Luminanz- und Chroma-Abschattung.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich :
RM101-15 (CHROMA SHADING 1) Prozeß
RM101-21 (CHROMA SHADING 2) Prozeß
RM101-22 (LUMA SHADING) Prozeß
Anzeige : Oszilloskop

1. Das Objektiv abdecken.
2. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen. (AV OUT mit einem 75 Ohm Widerstand verbinden.)
3. RM101-15 und RM101-21 auf eine lineare Wellenform abgleichen.
4. RM101-22 auf eine lineare Wellenform abgleichen.

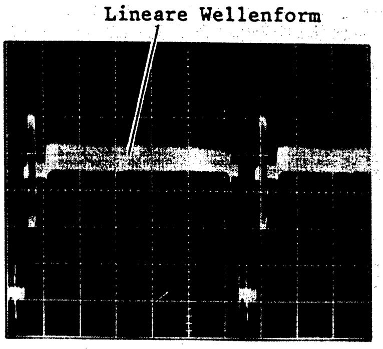


Abb. 4-5 Abschattungs-Einstellung

6) Matrix-Abgleich (Abb. 4-6, 4-52)

Dieser Abgleich korrigiert ungleichmäßige Farbtöne.

Testpunkt: PG106-3 Prozeß
Abgleich : RT101 (MATRIX) Prozeß
Anzeige : Oszilloskop

1. Die Kamera auf ein Farbbalkendiagramm richten.
2. Das Oszilloskop an PG106-3 anschließen.
3. RT101 so abgleichen, daß der Blaupegel 70% ±10% des Weißpegels beträgt.

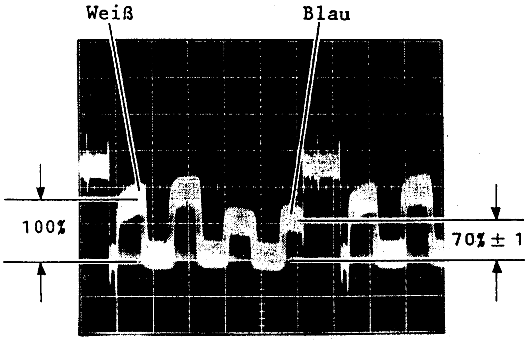


Abb. 4-6 Matrix-Abgleich

7) Schwarzabgleich/Y-Einstellung (Abb. 4-7, 4-8, 4-9, 4-52)

Dieser Abgleich sorgt für den richtigen Schwarzabgleich des Bildes.

Testpunkt: Video-Ausgang (TP209) Prozeß
Abgleich :
RM101-3 (BLU SETUP) Prozeß
RM101-4 (RED SETUP) Prozeß
RM101-5 (Y SETUP) Prozeß
RM101-14 (GRN SETUP) Prozeß
Anzeige : Vektorskop
Oszilloskop

Abgleich mittels Oszilloskop (Abb. 4-7, 4-9)

1. Das Objektiv abdecken.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. PG106-3 (BLU) und PG106-4 (RED) mit Masse (PG106-1) verbinden.
5. RM101-14 auf minimalen Träger in der Wellenform einstellen (siehe Abb. 4-7).
6. Den Masseschluß (PG106-1) von PG106-3 und PG106-4 lösen.
7. RM101-3 und RM101-4 auf minimalen Träger in der Wellenform abgleichen.
8. RM101-5 auf 35 mV ±15 mV von der Austastung bis zur Mitte der Wellenform einstellen (siehe Abb. 4-9).

Abgleich mittels Vektorskop und Oszilloskop (Abb. 4-8, 4-9)

1. Das Objektiv abdecken.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Den Video-Ausgang mit dem abgeschlossenen Vektorskop verbinden (mit 75 Ohm abschließen).
4. PG106-3 (BLU) und PG106-4 (RED) mit Masse (PG106-1) verbinden.
5. RM101-14 so abgleichen, daß der helle Teil des Vektors in der Mitte des Vektorskop-Bildschirmes positioniert ist (siehe Abb. 4-8).
6. Den Maseschluß (PG106-1) von PG106-3 und PG106-4 lösen.
7. RM101-3 und RM101-4 so abgleichen, daß der helle Teil des Vektors in der Mitte des Vektorskop-Bildschirms angeordnet ist.
8. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
9. RM101-5 auf 35 mVs-s ±15 mV von der Austastung bis zur Mitte der Wellenform abgleichen (siehe Abb. 4-9)

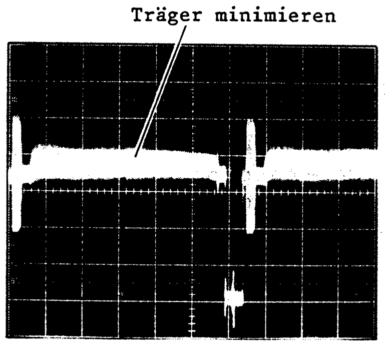


Abb. 4-7 Schwarzabgleich/Y-Einstellung

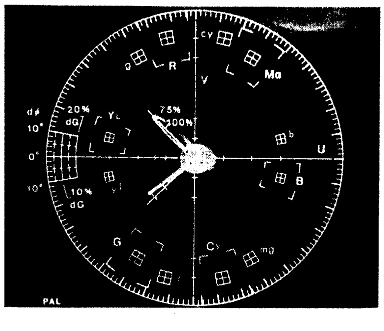


Abb. 4-8 Schwarzabgleich/Y-Einstellung

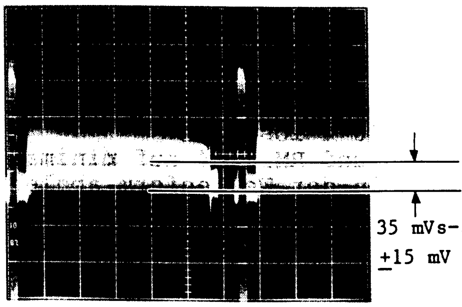


Abb. 4-9 Schwarzabgleich/Y-Einstellung

8) Rot/Blau-Signalgewinn (Abb. 4-10, 4-11, 4-52)

Dieser Vorgang stellt den Rot- und Blausignalpegel rcithig ein, um richtige Funktion des Weißabgleich-Schaltkreises sicherzustellen.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich :
RM101-11 (BLU GAIN) Prozeß
RM101-12 (RED GAIN) Prozeß
Anzeige : Oszilloskop
Vektorskop

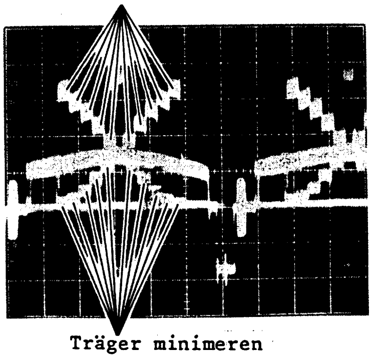
Abgleich mittels Oszilloskop (Abb. 4-10)

1. Die Kamera auf das Grauwertdiagramm richten.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. RM101-11 und RM101-12 so abgleichen, daß die Träger in den einzelnen Schritten der Wellenform minimiert werden (siehe Abb. 4-10).

Abgleich mittels Vektorskop (Abb. 4-11)

1. Das Objektiv abdecken.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Den Video-Ausgang an das abgeschlossenen Vektorskop anschließen (abschließen mit 75 Ohm).
4. RM101-11 und RM101-12 so abgleichen, daß der helle Teil des Vektors in der Mitte des Vektorskop-Bildschirms angeordnet ist (siehe Abb. 4-11).

Träger minimieren



Träger minimeren

Abb. 4-10 Rot/Blau-Signalgewinn

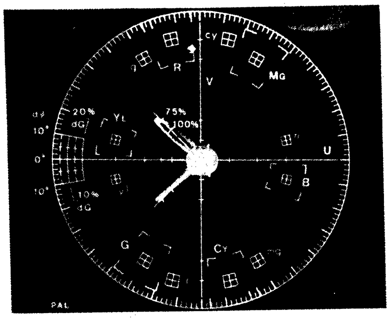


Abb. 4-11 Rot/Blau-Signalgewinn

9) AIC-Pegel (Abb. 4-12, 4-52)

Mit diesem Abgleich wird der Balancepunkt der Inrisblendenautomatik eingetellt.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich : RT102 (AIC) Prozeß
Anzeige : Oszilloskop

1. Die Kamera auf das Grauwertdiagramm richten.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. RT102 auf 735 mVs-s ±15 mV von dem Austastpegel bis zur Mitte des Weißpegels auf der Grauwertskala abgleichen.

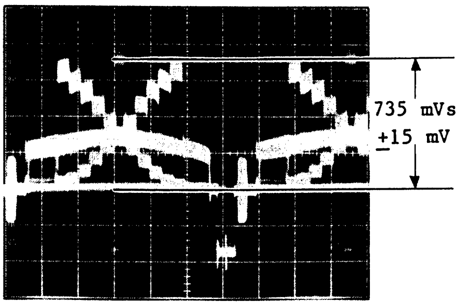


Abb. 4-12 AIC-Pegel

10) Burtssignalpegel (Abb. 3-13, 4-52)

Dieser Abgleich stellt den Burstsignalpegel ein.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich : RM101-13 (BURST LEVEL) Prozeß
Anzeige : Oszilloskop

1. Die Kamera auf das Farbbalkendiagramm richten.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. RM101-13 auf 300 mVs-s ±15 mV zum Burstpegel auf der Grauwertskala einstellen.

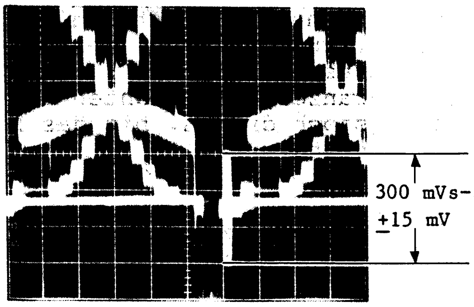


Abb. 4-13 Burstsignalpegel

11) Chromasignalpegel (Abb. 4-14, 4-15, 4-52)

Mit diesem Abgleich wird der Chromasignalpegel eingestellt.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich : RM101-2 (CHROMA LEVEL) Prozeß
Anzeige : Oszilloskop
Vektorskop

Abgleich mittels Oszilloskop (Abb. 4-14)

1. Die Kamera auf das Farbbalkendiagramm richten.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. RM101-2 so abgleichen, daß der Rotpegel der Wellenform 660 mV ±50 mV beträgt (siehe Abb. 4-14).

Abgleich mittels Vektorskop (Abb. 4-15)

1. Die Kamera auf das Grauwertdiagramm richten.
2. Eine Gleichspannung von 1,4 Volt (±0,05 V) an PG106-2 anlegen.
3. Den Video-Ausgang an das abgeschlossenen Vektorskop anschließen (mit 75 Ohm abschließen).
4. RM101-2 so abgleichen, daß der Rotvektor gleich oder mehr als 220% ±5% des Burstsignalpegels beträgt (siehe Abb. 4-15).

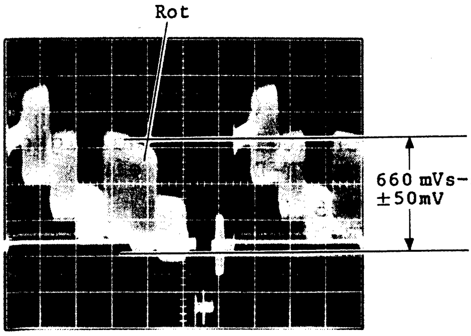


Abb. 4-14 Chromasignalpegel

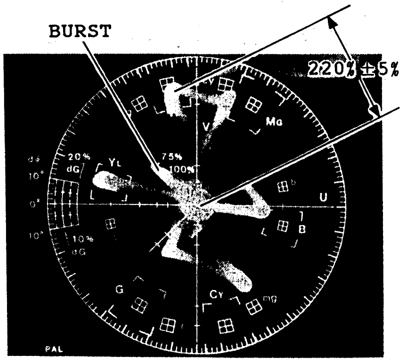


Abb. 4-15 Chromasignalpegel

12) Automatischer Weißabgleich (Abb. 4-16, 4-17, 4-52)

Dieser Abgleich sorgt für richtigen automatischen Weißabgleich.

Testpunkt: Video-Ausgang (TP209) Haupt
Abgleich : RM101-1 (WHT BAL.) Prozeß
Anzeige : Oszilloskop
Vektorskop

Abgleich mittels Oszilloskop (Abb. 4-16)

1. Ein Lichtausgleichsfilter C10 (C8 + C2) auf dem Objektiv anbringen.
2. Die Kamera auf das Grauwertskala richten.
3. Das Oszilloskop an TP209 (Video-Ausgang) der Haupt-Leiterplatte anschließen (AV OUT mit einem 75 Ohm Widerstand verbinden).
4. RM101-1 so abgleichen, daß die Träger in den einzelnen Schritten der Wellenform minimiert werden (siehe Abb. 4-16).

Abgleich mittels Vektorskop (Abb. 4-17)

1. Ein Lichtausgleichsfilter C10 (C8 + C2) auf dem Objektiv anbringen.
2. Die Kamera auf das Grauwertskala richten.
3. Den Video-Ausgang mit dem abgeschlossenen Vektorskop verbinden (mit 75 Ohm abschließen).
4. RM101-1 so abgleichen, daß der helle Teil des Vektors in der Mitte des Vektorskop-Bildschirms positioniert ist (siehe Abb. 4-17).

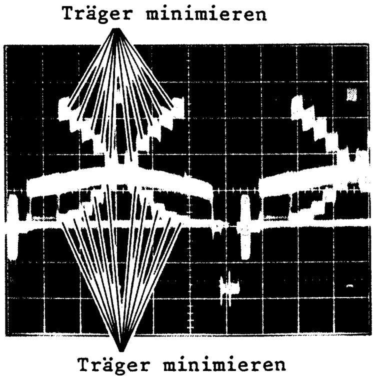


Abb. 4-16 Automatischer Weißabgleich

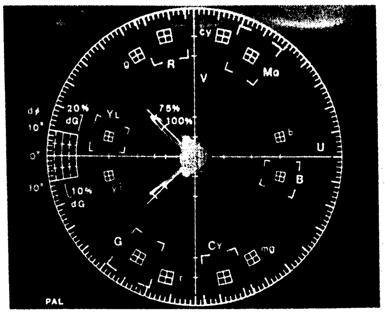


Abb. 4-17 **Automatischer Weißabgleich**

2-6 Elektronischer Sucher (EVF)

1) Horizontaler Bildfang des EVF (Abb. 4-18, 4-53)

Dieser Vorgang stellt die horizontale Synchronfrequenz während der Videorekorder-Wiedergabe ein.

Testpunk: TP801 EVF
Abgleich: RT801 (H.HOLD) EVF
Anzeige : Frequenzzähler

1. Den Frequenzzähler an TP801 anschließen.
2. Einen 47 µF Kondensator zwischen den Stiften 1 und 2 des CN801 anschließen.
3. RT801 auf 15,62 kHz ±0,05 kHz abgleichen.
4. Den Kondensator wieder abtrennen.

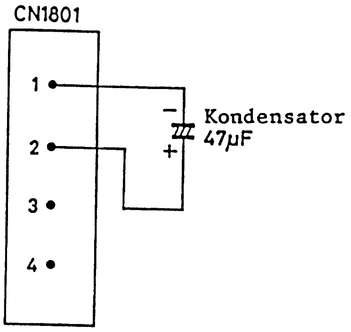


Abb. 4-18 **Horizontaler Bildfang des EVF**

2) EVF-Fokus (Abb. 4-53)

Mit diesem Abgleich wird der Fokus des Bildes des elektronischen Suchers optimal eingestellt.

Abgleich: RT803 (FOCUS) EVF
Anzeige : EVF-Display

1. Die Kamera auf das Auflösungsdiagramm richten.
2. RT803 auf maxiamle Auflösung des EVF-displays abgleichen.

3) EVF-Bildneigung (Abb. 4-19)

Dieser Abgleich verhindert Bildneigung auf dem EVF-Display.

Abgleich: Ablenkungsjoch
Anzeige : EVF-Display

1. Die Kamera mit dem Diagramm ausrichten, so daß beide in der gleichen Ebene angeornet sind.
2. Die Befestigungsschraube des Ablenkjoches lösen.
3. Die Sucheranzeige beobachten und das Ablenkungsjoch drehen, bis das Bild aufrecht steht.

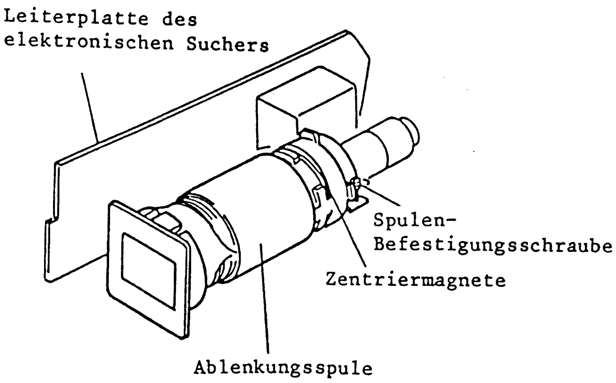

Leiterplatte des elektronischen Suchers
Spulen-Befestigungsschraube
Zentriermagnete
Ablenkungsspule

Abb. 4-19 **EVF-Bildneigung und EVF-Bildzentrierung**

4) EVF-Bildzentrierung (Abb. 4-19)

Dieser Abgleich zentriert das Bild auf dem EVF-Display.
Abgleich: Zentriermagnete
Anzeige : EVF-Display

1. Die Kamera auf das Auflösungsdiagramm richten und die Mitte des Diagramms mit der Mitte des Kameraobjektives ausrichten.
2. Die Zentriermagnete einstellen bis das Bild in der Mitte des EVF-Displays positioniert ist.

5) EVF-Vertikalgröße (Abb. 4-53)

Dieser Abgleich bestimmt die Vertikalgröße des am EVF-Display angezeigten Bildes.

Abgleich: RT802 (V.SIZE) EVF
Anzeige : EVF-Display

1. Die Kamera auf das Auflösungsdiagramm richten und den Referenzpfeil mit der Kante des Rasters im EVF-Display ausrichten.
2. RT802 so abgleichen, daß der Kreis auf dem Diagramm rund erscheint.

6) EVF-Helligkeit (Abb. 4-53)

Dieser Abgleich stellt die Helligkeit des Bildes auf dem EVF-Display ein.

Abgleich: RT805 (BRIGHT) EVF
Anzeige : EVF-Display
Video-Farbmonitor

1. Die Kamera auf das Grauskalendiagramm richten.
2. RT805 so abgleichen, daß die schwarzen und weißen Teile des Diagramms gleich im EVF-Display und am Video-Farbmonitor angezeigt werden.

2-7 Autofokus

1) Autofokus-Sensorposition (Abb. 4-20)

Abgleich: Sensor-Einstellschraube
Anzeige : Video-Farbmonitor

1. Den FOCUS Schalter auf Position AUTO stellen.
2. Die Kamera auf das Rückfokus-Diagramm richten.
3. Das Diagramm drei (3) Meter vor dem Kameraobjektiv aufstellen.
4. Den Fokussierring auf drei (3) Meter einstellen.
5. Die Sensor-Einstellschraube für optimalen Fokus des angezeigten Bildes einstellen.

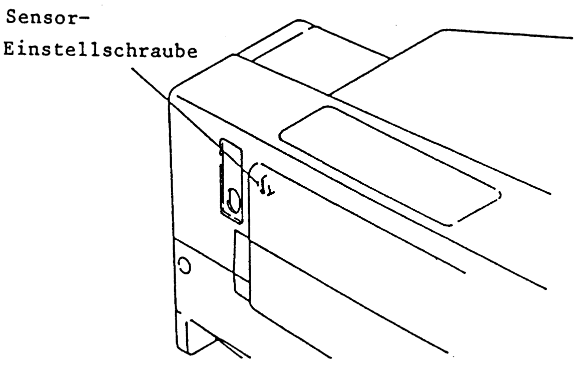

Sensor-
Einstellschraube

Abb. 4-20 Autofokus-Sensorposition

2-8 Anordnung der Abgleichteile

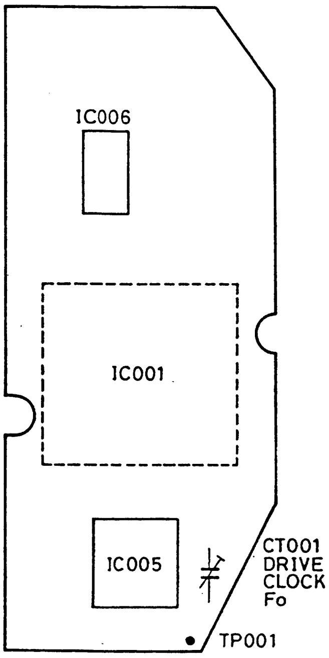

IC006
IC001
IC005
CT001
DRIVE
CLOCK
Fo
TP001

Abb. 4-51 Sensor-Leiterplatte (Leiterbahnseite)

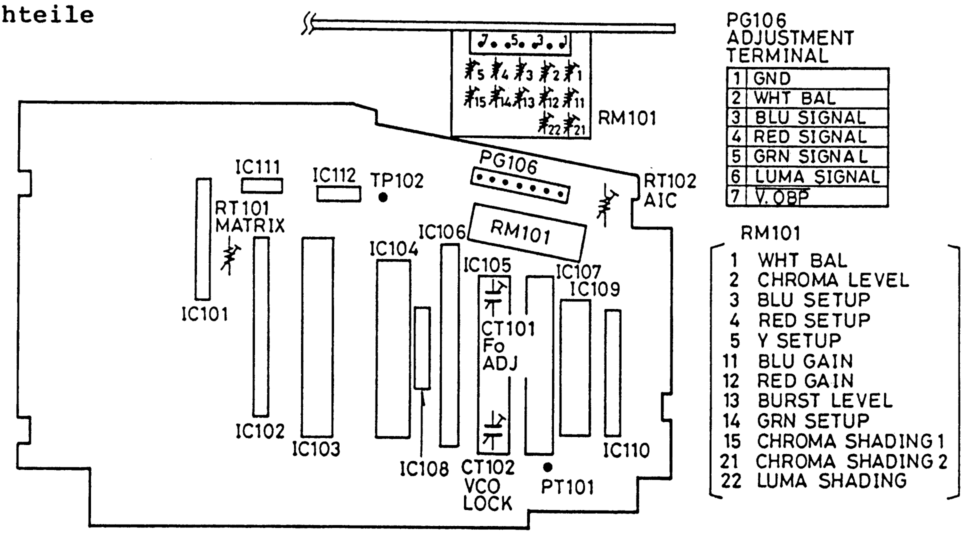

PG106
ADJUSTMENT
TERMINAL
1 GND
2 WHT BAL
3 BLU SIGNAL
4 RED SIGNAL
5 GRN SIGNAL
6 LUMA SIGNAL
7 V.OBP
RM101
1 WHT BAL
2 CHROMA LEVEL
3 BLU SETUP
4 RED SETUP
5 Y SETUP
11 BLU GAIN
12 RED GAIN
13 BURST LEVEL
14 GRN SETUP
15 CHROMA SHADING 1
21 CHROMA SHADING 2
22 LUMA SHADING
RM101
PG106
RT102
AIC
RM101
IC111
IC112
TP102
RT101
MATRIX
IC101
IC106
IC104
IC105
IC107
IC109
CT101
Fo
ADJ
IC102
IC103
IC108
CT102
VCO
LOCK
PT101
IC110

Abb. 4-52 Prozeß-Leiterplatte (Bestückungsseite)

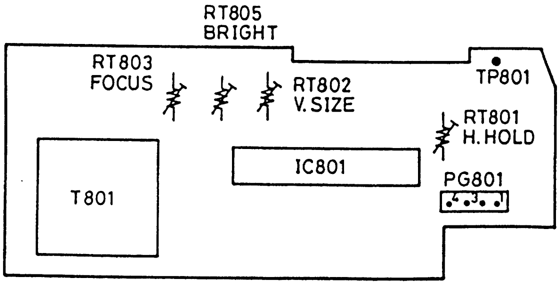

RT805
BRIGHT
RT803
FOCUS
RT802
V.SIZE
TP801
RT801
H.HOLD
IC801
PG801
T801

Abb. 4-53 Leiterplatte des elektronischen Suchers (Bestückungsseite)

3. Videorekorder-Abschnitt

3-1 Anordnung der Leiterplatten

1. Haupt-Leiterplatte
2. Löschschutzlamellenschalter
3. Kassettenhalterschalter
4. Wickeltellersensor

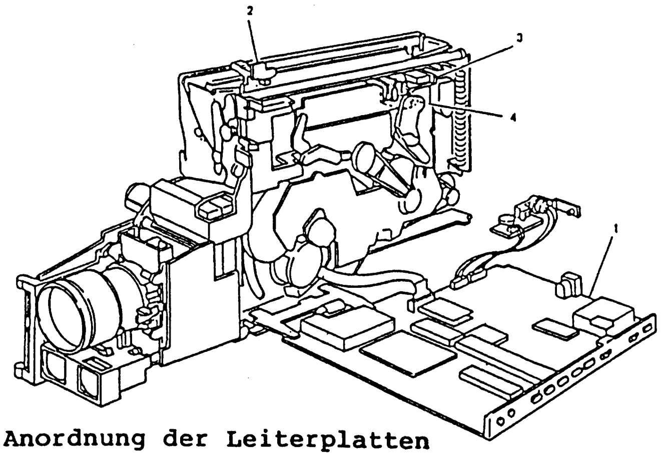


Abb. 4-101 Anordnung der Leiterplatten

5. Vorratsteller-Bandendensensor
6. Wickelteller-Bandendensensor
7. Bandendenlampe

3-2 Erforderliche Prüfeinrichtungen

Die folgenden Einrichtungen sind für die Einstellung der VHS MOVIE erforderlich.

Oszilloskop (Doppelspur, 10:1 Probe)
Digital-Voltmeter (DVM)
Millivoltmeter
Frequenzzähler
PAL Abgleichband (Teile-Nr. 7099052)
Schwarzes Band
Video-Farbmonitor
Gleichstromversorgung (12 V)

3-3 Abgleichbedingungen

1) Dieses Gerät mit einer Stromverorgung, einem Video-Farbmonitor und den Prüfeinrichtungen verbinden, wie es in Abb. 4-1 dergestellt ist.
2) Die 10:1 Probe des Oszilloskops verwenden, wenn nicht anders angegeben.

3-4 Einstellposition der Regler und Schalter

OPERATE Schalter .... Position ON
VIDEO/CAM Schalter ..... Position VIDEO
SHUTTER Schalter .... Position NORMAL
TRACKING Regler .... Mittelposition

3-5 Systemregelabschnitt

1) Einstellung des Überentladepegels (Abb. 4-104, 4-151)

Dieser Abgleich bestimmt den Überentladungs-Feststellpegel. Wenn die Akkuspannung auf einen bestimmten Pegel absinkt, schaltet der Videorekorder automatisch aus. Wenn der Überentladungs-Feststellpegel auf weniger als 10,9 V ±0,2 V eingestellt ist, dann wird die Lebensdauer des Akkus vermindert. Ist dagegen die Spannung auf über 11,65 V eingestellt, dann wird die verwendbare Zeit pro Ladung verkürzt.

Testpunkt:
PG902-2 (INT BATTERY TERMINAL) Haupt
Abgleich :
RT901 (OVER DISCHARGE LEVEL) Haupt
Anzeige :Video-Farbmonitor

1. Eine Gleichspannung von 12 V an die EXT Akkubuchse anschließen.

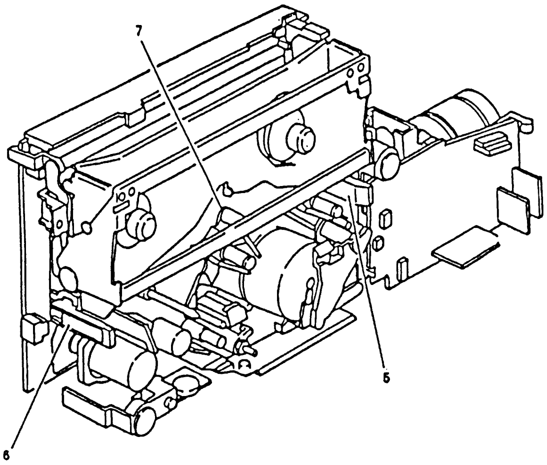


Abb. 4-102 Anordung der Leiterplatten

2. Eine Leer-Kassette in das Gerät einsetzen.
3. Den VIDEO/CAM Schalter auf Position CAM stellen.
4. Das Gerät auf den Aufnahmemodus schalten.
5. Die DISPLAY Taste drücken, um den Akkupegel und das Bandzählwerk auf dem Video-Farbmonitor anzuzeigen.
6. RT901 so abgleichen, daß die Akkuanzeige einen voll aufgeladenen Akku anzeigt.
7. Ein Digital-Voltmeter an PG902-2 der Haupt-Leiterplatte anschließen.
8. Die Versorgungsspannung auf 11,67 V ±20 mV an PG902-2 einstellen.
9. Den RT901 drehen, so daß der Akkuanzeigestatus (a) auf (b) geändert wird, wie es in Abb. 4-103 dargestellt ist.
10. Den VIDEO/CAM Schalter auf Position VIDEO stellen.

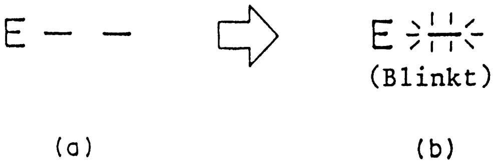


Abb. 4-103 Abgleich des Überentladepegels

2) Abgleich der Zeichenposition (Abb. 4-104, 4-151)

Dieser Abgleich regelt die horizontale Breite der Zeichenanzeige auf dem Bildschirm.

Abgleich:
RT902 (CHARACTER POSITION) Haupt
Anzeige : Video-Farbmonitor

1. Das Farbbalnkensignal über den AV-Eingangsadapter an die EVF-Buchse anlegen.
2. Den VIDEO/CAM Schalter auf Position CAM stellen.
3. Die DISPLAY Taste drücken, um die Akkuanzeige und das Bandzählwerk am Bildschirm des Monitors anzuzeigen.

4. RT902 so abgleichen, daß der Akkupegel gemäß Abb. 4-104 auf dem Monitor-Bildschirm positioniert ist.
5. Den VIDEO/CAM Schalter auf Position VIDEO stellen.

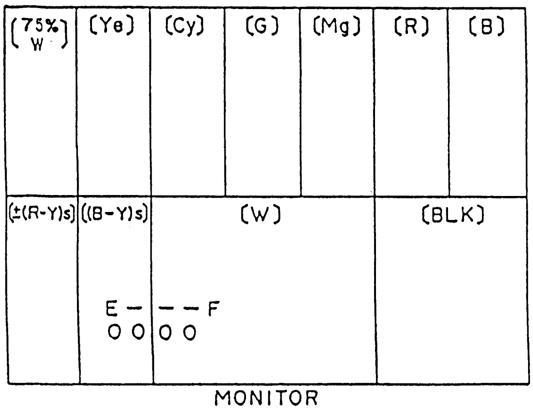


Abb. 4-104 Abgleich der Zeichenposition

3-6 Servo-Abschnitt

1) 30 Hz Referenzspannung (Abb. 4-151)

Dieser Referenzspannung wird verwendet, um für Fluktuationen zu korrigieren, die aufgrund von Ungleichmäßigkeiten zwischen dem Riemen, der Riemenscheibe, dem Capstanmotor und der Capstanwelle auftreten.

Testpunkt:	AUDIO OUT	
Abgleich :	R618	Haupt
	R619	Haupt
Anzeige :	Frequenzzähler	

1. Den Frequenzzähler an die Audio-Ausgangsbuchse anschließen.
2. Einen Überbrückungsdraht zwischen TP601 und PG610-3 auf der Haupt-Leiterplatte anschließen.
3. Ein Abgleichband in das Gerät einsetzen und das 3 kHz Audiosignal wiedergeben.
4. Darauf achten, daß der Frequenzzähler 3000 Hz ±15 Hz anzeigt.
5. Ist die Anzeige höher als 3015 Hz, R619 ausbauen. Darauf achten, daß R618 eingebaut ist; ist dies nicht der Fall, diesen einbauen.
6. Ist die Anzeige weniger als 2985 Hz, den R618 entfernen. Auf den R619 achten und diesen ggf. einbauen.
7. Die Überbrückung wieder entfernen.

2) Kopfwechselpunkt (Abb. 4-105, 4-151)

Während der Wiedergabe bestimmt der Impulsgeneratorschieber den Video-Kopfwechselpunkt. Eine Fehleinstellung des Impulsgeneratorschiebers kann zu Kopfwechselrauschen im Bild und/oder zu vertikaler Instabilität führen.

Testpunkt:	VIDEO OUT (TP209)	Haupt
Abgleich :	RT602 (PG SHIFTER)	Haupt
Anzeige :	Oszilloskop	

1. Das Abgleichband in das Gerät einsetzen und das Farbbalkensignal wiedergaben.
2. Ein Oszilloskop an TP209 anschließen (0,5 V/50 µsek.cm).
3. Das Oszilloskop an SW25Hz triggern. (Den TP205 auf der Haupt-Leiterplatte verwenden.)
4. Das Oszilloskop auf eine (-) Filterflankensteilheit einstellen und den RT602 so abgleichen, daß die Anstiegsflanke des SW25Hz Signals 6,5H ±0,5 H (horizontale) Linien vor dem Start des CG-1 Vertikal-Synchronisierungsignals liegt.
5. Das Oszilloskop auf eine (+) Filterflankensteilheit einstellen und sicherstellen, daß die Anstiegsflanke des SW25Hz Signals 6,5H ±0,5 H (horizontale) Linien von dem Start des CH-2 Vertikal-Synchronisierungsignals liegt.

Hinweis: Die Wellenform des CH-1 und CH-2 Videosignals in dem Diagramm können entgegengesetzt sein, abhängig von dem Abgleichband.

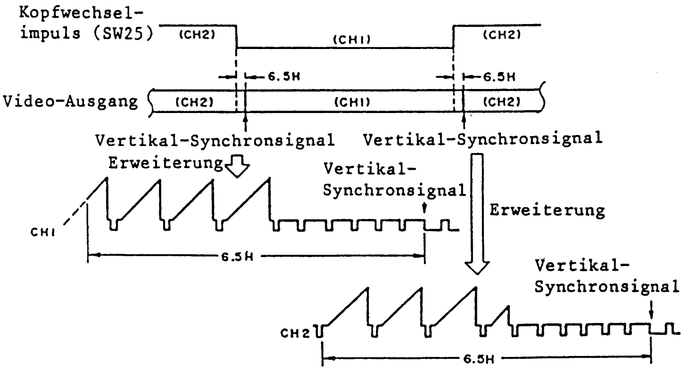


Abb. 4-105 Abgleich des Kopfwechselpunktes

3) Spurlagen-Voreinstellung (Abb. 4-106, 4-151)

Dieser Abgleich wird ausgeführt, um die richtige Spurlage während der Wiedergabe eines auf diesem Gerät aufgezeichneten bandes zu erhalten. Wird dieser Abgleich nicht richtig ausgeführt, dann kommt es in Raststellung des Reglers zu Rauschen oder das Rauschen kann durch Verstellen des Spurlagenreglers nicht eliminiert werden.

Testpunkt:	VIDEO OUT (TP209)	Haupt
	TP602	Haupt
Abgleich :		
	RT601 (TRACKING PRESET)	Haupt
Anzeige :	Oszilloskop	

1. Ein Farbbalkensignal über den AV-Eingangsadapter an die EVF-Buchse anlegen.
2. Den TRACKING Regler in seine Ratstellung bringen.
3. Eine Leer-Kassette verwenden, eine Aufnahme ausführen und dieser dann wiedergaben.
4. Die CH-1 Probe an den TP602 anschließen (1 V/0,5 msec.cm).
5. Die CH-2 Probe an den Video-Ausgang anschließen (0,5 V/0,5 msec.cm).

6. Das Oszilloskop mit SW25Hz triggern. (Den TP205 auf der Haupt-Leiterplatte verwenden.)
7. Das Oszilloskop auf eine (-) Flankensteilheit einstellen.
8. RT601 so abgleichen, daß der Steuerspurimpuls und die Schwarzschulter des Vertikal-Synchronsignals des Videosignals übereinstimmen.

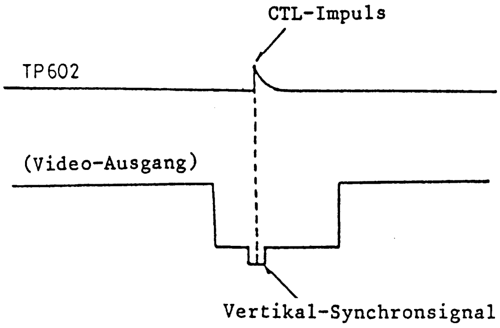


Abb. 4-106 Spurlagen-Voreinstellung

3-7 Luminanz/Chroma-Abschnitt

1) Aufnahme-Chromasignalpegel (Abb. 4-107, 4-108, 4-109, 4-151)

Dieser Abgleich führt zu optimalem Aufnahmefarbpegel. Ist der Aufnahme-Chromasignalpegel zu nieder, dann kommt es zu Rhombusverzerrungen im Bild. Bei zu hohem Pegel wird dagegen die Farbwiedergabe beeinträchtigt.

Testpunkt: TP201 Haupt
Abgleich :
RT201 (REC LUMA LEVEL) Haupt
RT202 (REC CHROMA LEVEL) Haupt
Anzeige : Oszilloskop

1. Ein Farbbalkensignal über den AV-Eingangsadapter an die EVF-Buchse anlegen.
2. Das Oszilloskop an TP201 anschließen (50 mV/2 msek.cm) (Den TP202 an der Haupt-Leiterplatte an Masse legen.)
3. Eine Leer-Kassette in das Gerät einsetzen.
4. Den VIDEO/CAM Schalter auf Position CAM stellen.
5. Das Gerät auf den Aufnahmemodus schalten.
6. RT201 bis zum Anschlag gegen den Uhrzeigersinn drehen.

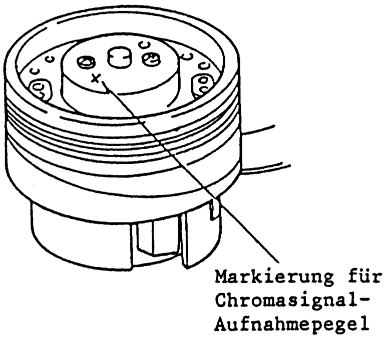


Abb. 4-107 Markierungen der oberen Kopftrommel

7. Die obere Kopftrommel auf die angebrachte Nummer kontrolliern (siehe Abb. 4-107).
8. RT202 gemäß Diagramm einstellen (siehe Abb. 4-108, 4-109).
9. Den Aufnahme-Luminanzpegel einstellen.
10. Den VIDEO/CAM Schalter auf Position VIDEO stellen.

Markierung	Pegel
0	25 mVs-s
2	30 mVs-s
4	35 mVs-s

Abb. 4-108 Aufnahme-Chromapegel

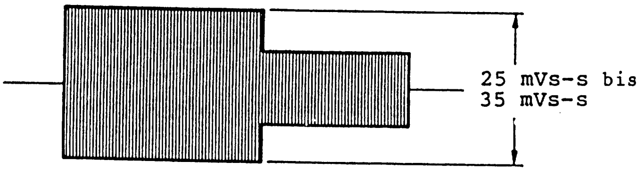


Abb. 4-109 Aufnahme-Chromapegel

2) Aufnahme-Luminanzpegel (Abb. 4-110, 4-151)

Mit diesem Abgleich wird der optimale Aufnahme-Luminanzpegel erhalten.
Ist der Aufnahme-Luminanzpegel zu hoch, dann kann es zu Überladen des Videos kommen. Bei einem zu niederen Pegel, wird dagegen der Fremdspannungsabstand verschlechtert.
Der Aufnahme-Chromapegel sollte vor dem Aufnahme-Luminanzpegel eingestellt werden.

Testpunkt: TP201 Haupt
Abgleich :
RT201 (REC LUMA LEVEL) Haupt
Anzeige : Oszilloskop

1. Ein Farbbalkensignal über den AV-Eingangsadapter an die EVF-Buchse anlegen.
2. Das Oszilloskop an TP201 anschließen. (50 mV/2 msek.cm) (Den TP202 an der Haupt-Leiterplatte an Masse legen.)
3. Eine Leer-Kassette in das Gerät einsetzen.
4. Den VIDEO/CAM Schalter auf Position CAM stellen.
5. Das Gerät auf den Aufnahmemodus schalten.
6. RT201 auf 140 mVs-s ±5 mV abgleichen.
7. Den VIDEO/CAM Schalter auf Position VIDEO stellen.

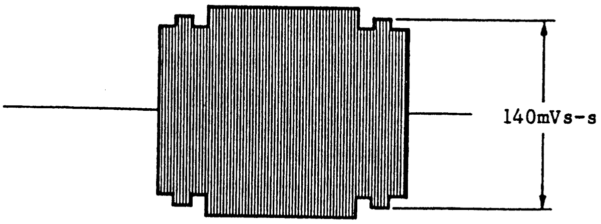


Abb. 4-110 Aufnahme-Luminanzpegel

3-8 Audio-Abschnitt

1) Audio-Wiedergabegewinn (Abb. 4-151)

Diese Abgleich stellt den Audio-Signalausgang auf den spezifizierten Pegel ein.

Testpunkt: AUDIO OUTPUT
AUDIO GND
Abgleich : RT401 (AUDIO PB GAIN) Haupt
Anzeige : Millivoltmeter

1. Das Millivoltmeter an den Audio-Ausgang anschließen (AUDIO GND verwenden).
2. Ein Abgleichband in das Gerät einsetzen und das 1 kHz Audio-Signal wiedergaben.
3. RT401 auf eine Anzeige von -7,8 dBm ±0,5 dBm abgleichen.

2) Audio-Vormagnetisierungspegel (Abb. 4-151)

Dieser Abgleich optimiert die Audio-Aufnahme-Vornagnetisierung.

Ist die Audio-Vormagnetisierung zu nieder eingestellt, dann kommt es zu Verzerrungen im Höhenbereich. Bei zu hoch eingestelltem Pegel werden dagegen die Höhen bedämpft.

Testpunkt: TP401 (REC BIAS) Haupt
TP402 (BIAS GND) Haupt
Abgleich :
RT402 (AUDIO BIAS LEVEL) Haupt
Anzeige : Millivoltmeter

1. Das Millivoltmeter an TP401 anschließen (GND von TP402 vewenden).
2. Eine Leer-Kassette in das Gerät einsetzen.
3. Den VIDEO/CAM Schalter auf Position CAM stellen.
4. Das Gerät auf den Aufnahmemodus schalten.
5. RT402 auf eine Anzeige von 2,4 mV ±0,1 mV (effekt.) einstellen.
6. Den VIDEO/CAM Schalter auf Position VIDEO stellen.

3-9 Anordnung der Abgleichteile

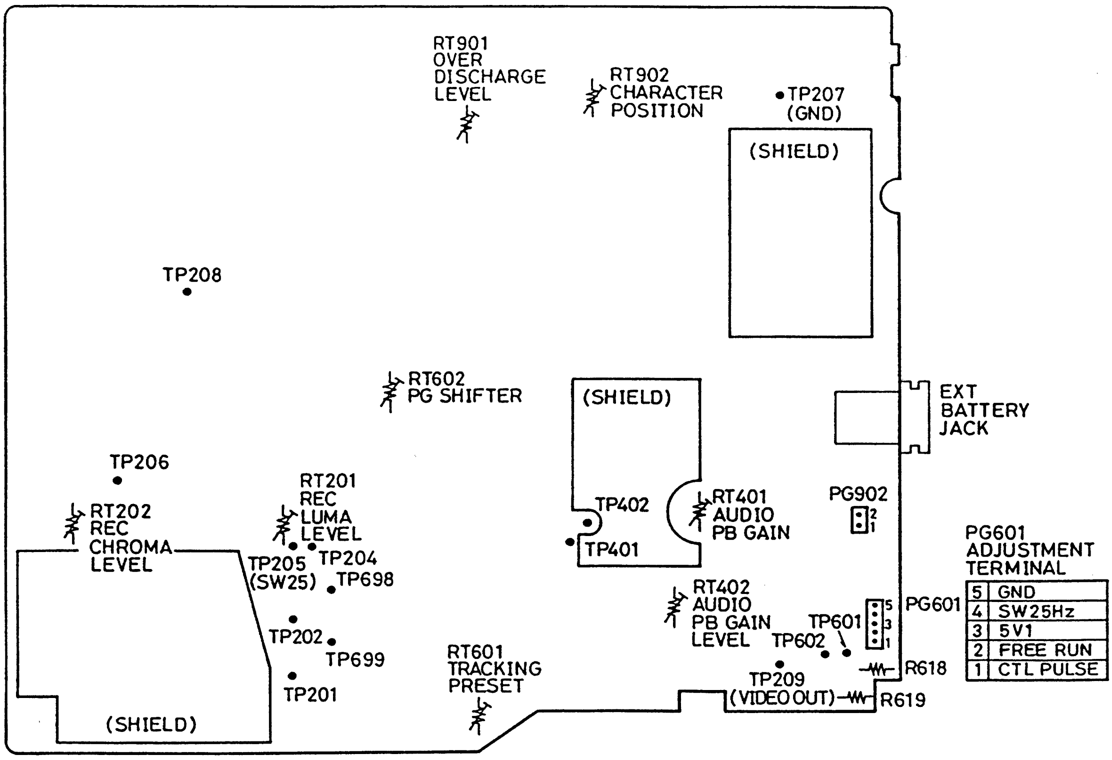

RT901
OVER
DISCHARGE
LEVEL
RT902
CHARACTER
POSITION
TP207
(GND)
(SHIELD)
TP208
RT602
PG SHIFTER
(SHIELD)
EXT
BATTERY
JACK
TP206
RT202
REC
CHROMA
LEVEL
RT201
REC
LUMA
LEVEL
TP205
(SW25)
TP204
TP698
TP402
TP401
RT401
AUDIO
PB GAIN
PG902
2
1
PG601
ADJUSTMENT
TERMINAL
5 GND
4 SW25Hz
3 5V1
2 FREE RUN
1 CTL PULSE
RT402
AUDIO
PB GAIN
LEVEL
TP601
TP602
5
3
1
PG601
R618
TP202
TP699
TP201
RT601
TRACKING
PRESET
TP209
(VIDEO OUT)
R619
(SHIELD)

Abb. 4-151 Haupt-Leiterplatte
(Leiterbahnseite)

Verwendung dieses Referenzmaterials

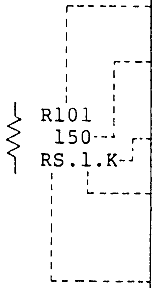
1. Lesen der Abkürzungen

Hinweis:

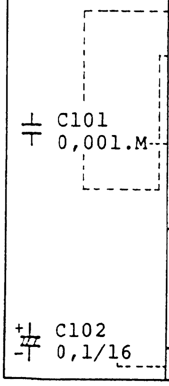
(1) Spannungen gemessen mit der negativen Seite der Stromversorgung als Referenz:
Die Spannungen in dem Kamerateil werden gemessen, wenn sich der Videorekorder in dem Aufnahmemodus befindet. Die Spannungen in dem Videorekorder werden während der Aufnahme und Wiedergabe gemessen. Die Spannungen in Klammern werden im Aufnahmemodus gemessen. Die einzelnen Spannungen sind gleich während des Aufnahme- und Wiedergabemodus.

(2) Benennung der Wiederstände und Kondensatoren.

(3) Bei der Bestellung von Widerständen und Kondensatoren müssen Wert, Spannung, Toleranz und Sorte angegeben werden.



Schaltkreis-Nr.	
Wert	Keine Angabe (Ohm) K: 1000 M: 1000k
Toleranz	Keine Anagbe ±5% K: ±10% M: ±20%
Wattzahl	Keine Angabe 1/4 W
Sorte	Kohlestoffilm ohne Angabe RC Komposition RW Draht geerdet RS Oxydmetallschicht RN Feste Metallschicht



Schaltkreis-Nr.		
	Keine Angabe µF P PF	
Toleranz	Keine Angabe ±10% J ±5% M ±20% Z +80%, -20% D ±0,5pF C ±0,25pF	
Sorte	⊣⊢	Keramisch
	+⊣⊢	Elektrolytisch
	M⊣⊢	Mylar
	P⊣⊢	Polyester
	S⊣⊢	Styrol
Spannung	Keine Angabe 50	

2. Vorsichtsmaßnahmen bei der Handhabung von MOS-ICs

(1) Der MOS-IC ist für den Versand in schwarzen Schaumstoff eingesetzt. Dieser Schaumstoff ist leitend und schließt die Anschlüsse kurz, um Beschädigungen zu vermeiden. Die ICs während der Lagerung nicht aus diesen Schaumstoffen entfernen. Die ICs niemals auf Plastik ablegen (statische Elektrizität) oder in Styrol-Schaumstoff einsetzen.

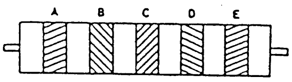
(2) Während des Lötens kann es aufgrund von Kriechströmen von dem Lötkolben zu hohen Spannungen kommen. Daher die Spitzte des Lötkolbens mit Masse verbinden oder einen Niederspannungs-Lötkolben verwenden.

(3) Der menschliche Körper, Kleider aus Kunstfasern oder Nylon-Handschuhe können eine statische Elektrizität von mehreren tausend Volt aufweisen; die Arbeiter sollten daher geerdet werden.

(4) Unbedingt die Meßinstrumente, wie Oszillioskop, Röhrenvoltmeter usw. erden, wenn diese für Reparaturen verwendet werden.

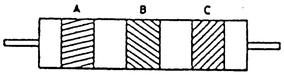
3. Ablesen der Kapazität und der Induktanz der wie Widerstände geformten Kondensatoren und Spulen

Kondensator



Kapazität: (10A+B)xC (pF)
Toleranz: D
Nennspannung: Gehäusefarbe
Rosa: 25 V
Grün: 50 V
Kennlinie:

Spulen



Induktanz: (10A+B)xC (µH)

Farbe	A,B	C	D	E
Schwarz	0	10^0	±20%	Für Temperaturkompensation
Braun	1	10^1		
Rot	2	10^2		
Orange	3	10^3		
Gelb	4	10^4		
Grün	5	10^5		
Blau	6			
Violett	7			
Grau	8		±30%	Hohe elektrische Konstante
Weiß	9			Für Temperaturkompensation
Gold		10^{-1}	± 5%	
Silber		10^{-2}	±10%	Hohe dielektrische Konstante

Identifikation leitungsfreier Komponenten

1. Leitungsfreie Transistoren

Die Nummer der leitungsfreien Transistoren ist mit einem Code an der Oberfläche angegeben. Dieser Code beteht aus zwei Buchstaben, einem Buchstaben und einer Ziffer, einer Ziffer und zwei Buchstaben oder zwei Ziffern.
Diesen Code und die folgende Tabelle für die Identifikation der Komponenten verwenden.

Buchstabe	Transistor-Nummer	Buchstabe	Transistor-Nummer
A	2SB709	S1	FMS1
AA	2SSD1757K	U	2SC2404
B	2SC1621	W	2SD602
BR	2SC2412KR(BR)	W1	FMW1
BS	2SC2412KS(BS)	W2	FMW2
C	2SA1122	WQ	2SK322Q(WQ)
CR	2SB710R(CR)	X	2SK157
CQ	2SC2412KQ(CQ)	Y	2SD601
D	2SC2463	Z	2SD874
E	2SA1022		
F	2SC2619	1F	2SK321
FR	2SA1037KR(FR)	1M	2SA1052
H	2SC1036K	1K	2SK316
I	2SB792	2B	2SK374
K	2SK160	3N	2SK620
L	2SC2462		
L(6)	2SC1623(6)(L6)	13	DTA143K
M	2SA1052	15	DTA124K
N	2SC1653	16	DTA144EK
P	2SD814	25	DTC124K
Q	2SC2620	26	DTC144K
R	2SC2618	A2	FMA2
S	2SA1121	G2	FMG2

(1) Identifikation für zwei Buchstaben.
Diesen Code und die folgende Tabelle für die Identifikation der Komponenten verwenden.

Beispiel:

Code	Nummer
CD	2SA1122D
LD	2SC2462D

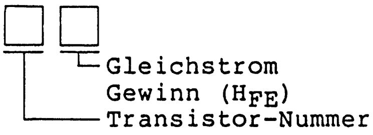


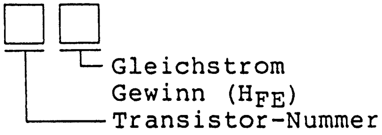
Abb. 5-1 Leitungsfreier Transistor-Code

(2) Identifikation von zwei Typen mit einem Buchstaben und einer Ziffer.

Buchstabe	Transistor-Nummer
L	2SC1623

Beispiel:

Code	Nummer
L5	2SC1623(5)
L6	2SC1623(6)



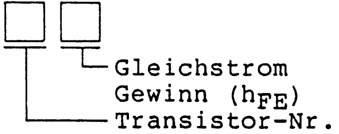
Hinweis:
Codes A2, G2, S1, W1 und W2 zeigen nur die Transistor-Nummer.

Abb. 5-2 Leitungsfreier Transistor-Code

(3) Identifikation mit einer Ziffer und zwei Buchstaben.
Diesen Code und die folgende Tabelle für die Identifikation der Komponenten verwenden.

Beispiel:

Code	Nummer
1FQ	2SK321Q



(4) Identifikation mit zwei Ziffern.
Diese Code zeigen nur die Transistor-Nummern.

2. Leitungsfreie Dioden

Die Nummern leitungsfreier Dioden sind durch einen Code an der Oberfläche angegeben, der aus einem Buchstaben und einer Ziffer, zwei Buchstaben, zwei Buchstaben und einer Ziffer, zwei Ziffern und einem Buchstaben oder drei Ziffern besteht.

Code	Dioden-Nummer	Code	Dioden-Nummer
C1	HSM88S	9.1	MA3091
MC	MA153	27	RD2.7M-B
MH	MA151K	30	RD3.0M-B
MN	MA151WA	56	RD5.6M-B
MO	MA152WA	91	RD9.1M-B
MT	MA151WK		
MU	MA152WK	56M	MA3056M
M1D	MA160	75L	MA3075L
NT	DAN202K	82M	MA3082M
		91M	MA3091M
S1A	1SR143		
		272	D2.7M-B2
3.0L	MA3030L	362	D3.6M-B2
4.3L	MA3043L		
5.1M	MA3051M	512	RD5.1M-B2
6.2L	MA3062L	621	RD6.2M-B1
6.8	MA3068	683	RD6.8M-B3
6.8M	MA3068M	102	RD10M-B2
7.5H	MA3075H	163	RD16M-B3
8.2M	MA3082M	182	RD18M-B2

3. Leitungsfreie Widerstände

Der Widerstandswert ist auf der Oberfläche der Komponente mit einer dreistelligen Zahl oder einem Buchstaben und einer Ziffer angegeben.

(1) Identifikation mit dreistelliger Zahl.

Diesen Code gleich wie den Code eines diskreten Widerstandes ablesen.

Beispiel:

Code	Wert
330	$33 \times 10^0 = 33$ Ohm
561	$56 \times 10^1 = 560$ Ohm
123	$12 \times 10^3 = 12$K Ohm
1R2	$1 \times 0,2 = 1,2$ Ohm

(R: Dezimalpunkt)

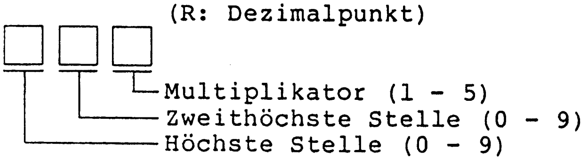


Abb. 5-3 Code der leitungsfreien Widerstände

(2) Identifikation mit einem Buchstaben und einer Ziffer

Diesen Code und die folgende Tabelle für die Identifikation der Komponenten verwenden.

Buchstabe	Wert	Buchstabe	Wert
A	1	N	3,3
C	1,2	Q	3,9
E	1,5	S	4,7
G	1,8	U	5,6
J	2,2	W	6,8
L	2,7	Y	8,2

Beispiel:

Code	Wert
A1	$1 \times 10^1 = 10$ Ohm
G2	$1,8 \times 10^2 = 180$ Ohm
L3	$2,7 \times 10^3 = 2700$ Ohm
S4	$4,7 \times 10^4 = 47$K Ohm
W5	$6,8 \times 10^5 = 680$K Ohm

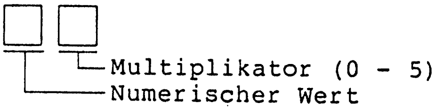
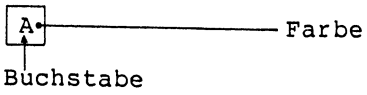


Abb. 5-4 Code der leitungsfreien Widerstände

4. Leitungsfreie Kondensatoren

Die Kapazität ist auf der Oberfläche der Komponente mit Hilfe der Gehäusefarbe und einem Buchstaben oder einem Buchstaben und einer Ziffer angegeben.

(1) Identifikation mit Gehäusefarbe und einem Buchstaben

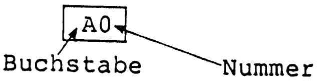


Gehäusefarbe	Buchstabe	Wert
Rot	A	1(PF)
	C	2
	E	3
	G	4
	J	5
	L	6
	N	7
	Q	8
	S	9
Schwarz	A	10(PF)
	C	12
	E	15
	G	18
	J	22
	L	27
	N	33
	Q	39
	S	47
	U	56
	W	68
	Y	82
Blau	A	100(PF)
	C	120
	E	150
	G	180
	J	220
	L	270
	N	330
	Q	390
	S	470
	U	560
	W	680
	Y	820
Weiß	A	0,001(µF)
	E	0,0015
	J	0,0022
	L	0,0027
	N	0,0033
	S	0,0047
	W	0,0068
Grün	A	0,01(µF)
	E	0,015
	J	0,022
	N	0,033
	S	0,047
	U	0,056
	W	0,068
	Y	0,082
Gelb	A	0,1(µF)

Beispiel:

Farbe	Code	Wert
Rot	A	1PF
Schwarz	A	10PF

(2) Identifikation mit einem Buchstaben und einer Ziffer



Buchstabe/ Nummer	Wert	Buchstabe/ Nummer	Wert
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
		U2	560
A1	10(PF)	W2	680
C1	12	Y2	820
E1	15		
G1	18	A3	0,001(μF)
J1	22	E3	0,0015
L1	27	J3	0,0022
N1	33	N3	0,0033
Q1	39	S3	0,0047
S1	47	W3	0,0068
U1	56		
W1	68	A4	0,01 (μF)
Y1	82	E4	0,015
		J4	0,022
		N4	0,033
		S4	0,047
		U4	0,056
		W4	0,068
		A5	0,1

Beispiel:

Buchstabe/Nummer	Wert
A0	1PF
A1	10PF

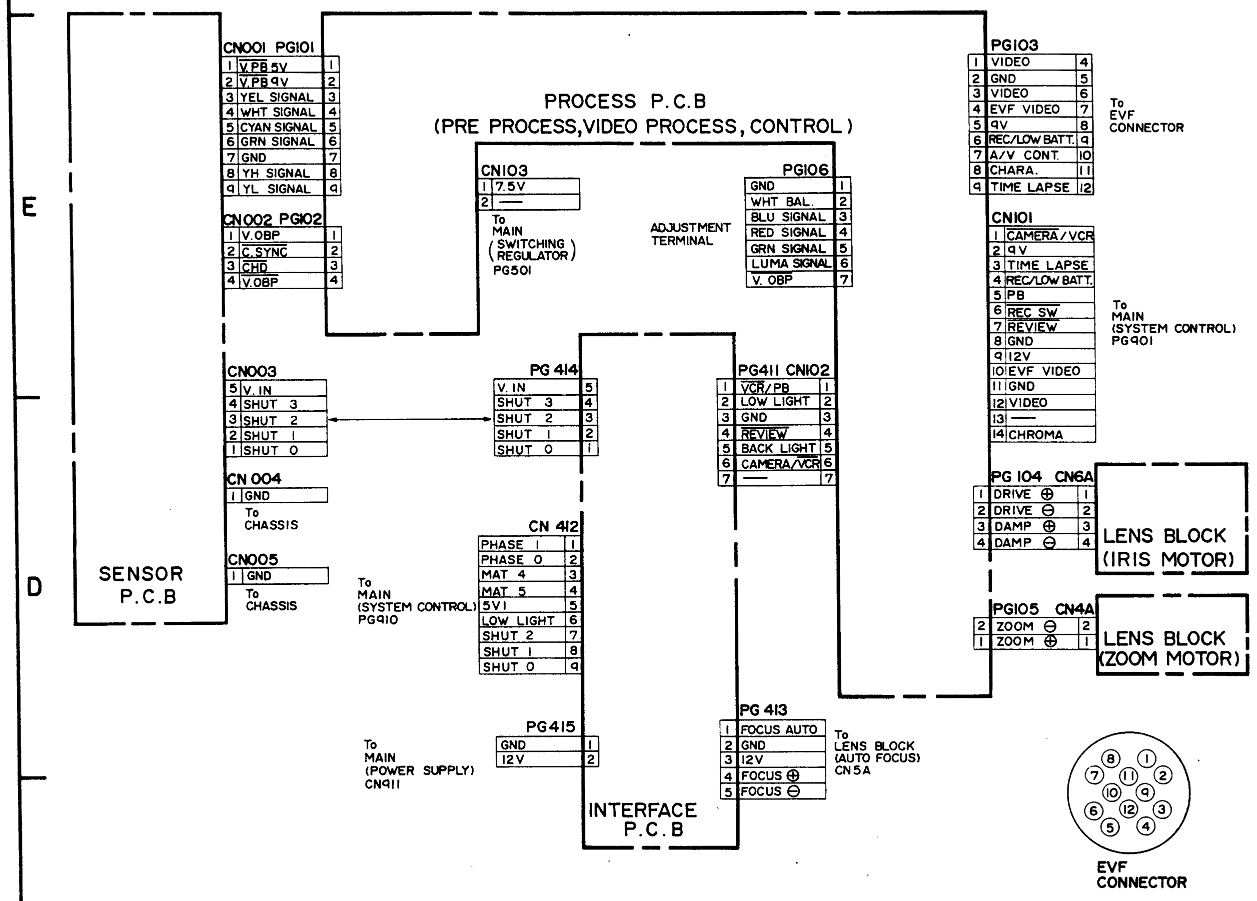
5. Leitungsfreie Überbrückung

Leitungsfreie Überbrückungen sind wie folgt dargestellt.

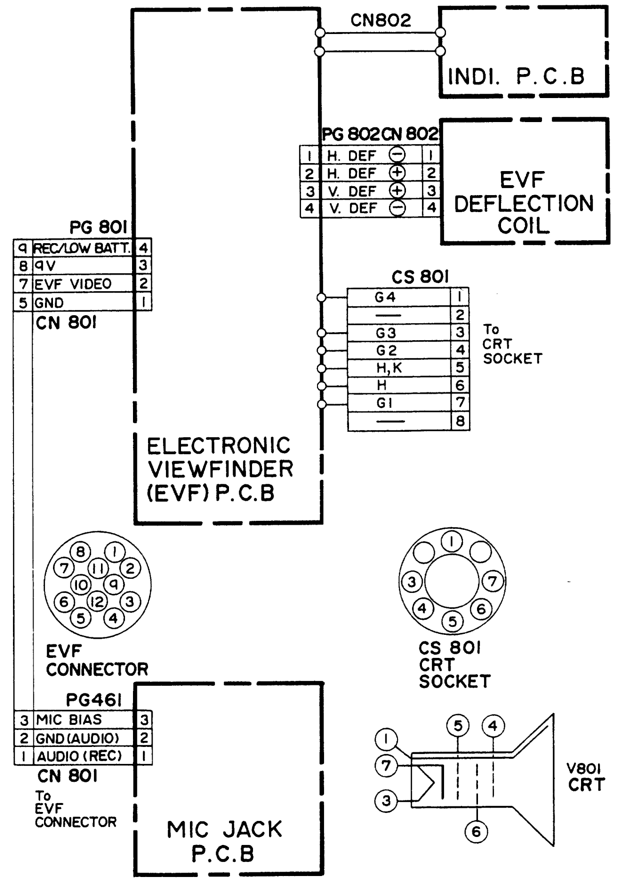
(1) 000 (2) 00 (3) 0 (4) ●●

CIRCUIT BOARD CONNECTION DIAGRAMS

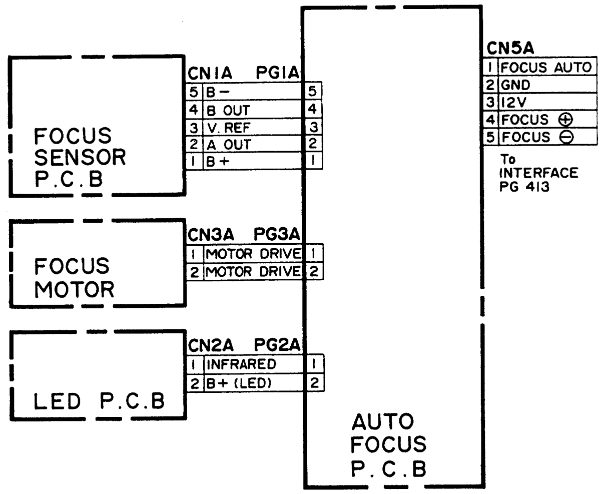
• CAMERA


SENSOR P.C.B
CN001 PG101
1 V.PB 5V 1
2 V.PB 9V 2
3 YEL SIGNAL 3
4 WHT SIGNAL 4
5 CYAN SIGNAL 5
6 GRN SIGNAL 6
7 GND 7
8 YH SIGNAL 8
9 YL SIGNAL 9
CN002 PG102
1 V.OBP 1
2 C.SYNC 2
3 CHD 3
4 V.OBP 4
CN003
5 V. IN
4 SHUT 3
3 SHUT 2
2 SHUT 1
1 SHUT 0
CN 004
1 GND
To CHASSIS
CN005
1 GND
To CHASSIS
PROCESS P.C.B
(PRE PROCESS, VIDEO PROCESS, CONTROL)
CN103
1 7.5V
2 —
To MAIN (SWITCHING REGULATOR) PG501
ADJUSTMENT TERMINAL
PG106
GND 1
WHT BAL. 2
BLU SIGNAL 3
RED SIGNAL 4
GRN SIGNAL 5
LUMA SIGNAL 6
V. OBP 7
PG 414
V. IN 5
SHUT 3 4
SHUT 2 3
SHUT 1 2
SHUT 0 1
PG411 CN102
1 VCR/PB 1
2 LOW LIGHT 2
3 GND 3
4 REVIEW 4
5 BACK LIGHT 5
6 CAMERA/VCR 6
7 — 7
CN 412
PHASE 1 1
PHASE 0 2
MAT 4 3
MAT 5 4
5V1 5
LOW LIGHT 6
SHUT 2 7
SHUT 1 8
SHUT 0 9
To MAIN (SYSTEM CONTROL) PG910
PG415
GND 1
12V 2
To MAIN (POWER SUPPLY) CN911
PG 413
1 FOCUS AUTO
2 GND
3 12V
4 FOCUS ⊕
5 FOCUS ⊖
To LENS BLOCK (AUTO FOCUS) CN5A
INTERFACE P.C.B
PG103
1 VIDEO 4
2 GND 5
3 VIDEO 6
4 EVF VIDEO 7
5 9V 8
6 REC/LOW BATT. 9
7 A/V CONT. 10
8 CHARA. 11
9 TIME LAPSE 12
To EVF CONNECTOR
CN101
1 CAMERA/VCR
2 9V
3 TIME LAPSE
4 REC/LOW BATT.
5 PB
6 REC SW
7 REVIEW
8 GND
9 12V
10 EVF VIDEO
11 GND
12 VIDEO
13 —
14 CHROMA
To MAIN (SYSTEM CONTROL) PG901
PG 104 CN6A
1 DRIVE ⊕ 1
2 DRIVE ⊖ 2
3 DAMP ⊕ 3
4 DAMP ⊖ 4
LENS BLOCK (IRIS MOTOR)
PG105 CN4A
2 ZOOM ⊖ 2
1 ZOOM ⊕ 1
LENS BLOCK (ZOOM MOTOR)
8 1 7 11 2 10 9 6 12 3 5 4
EVF CONNECTOR

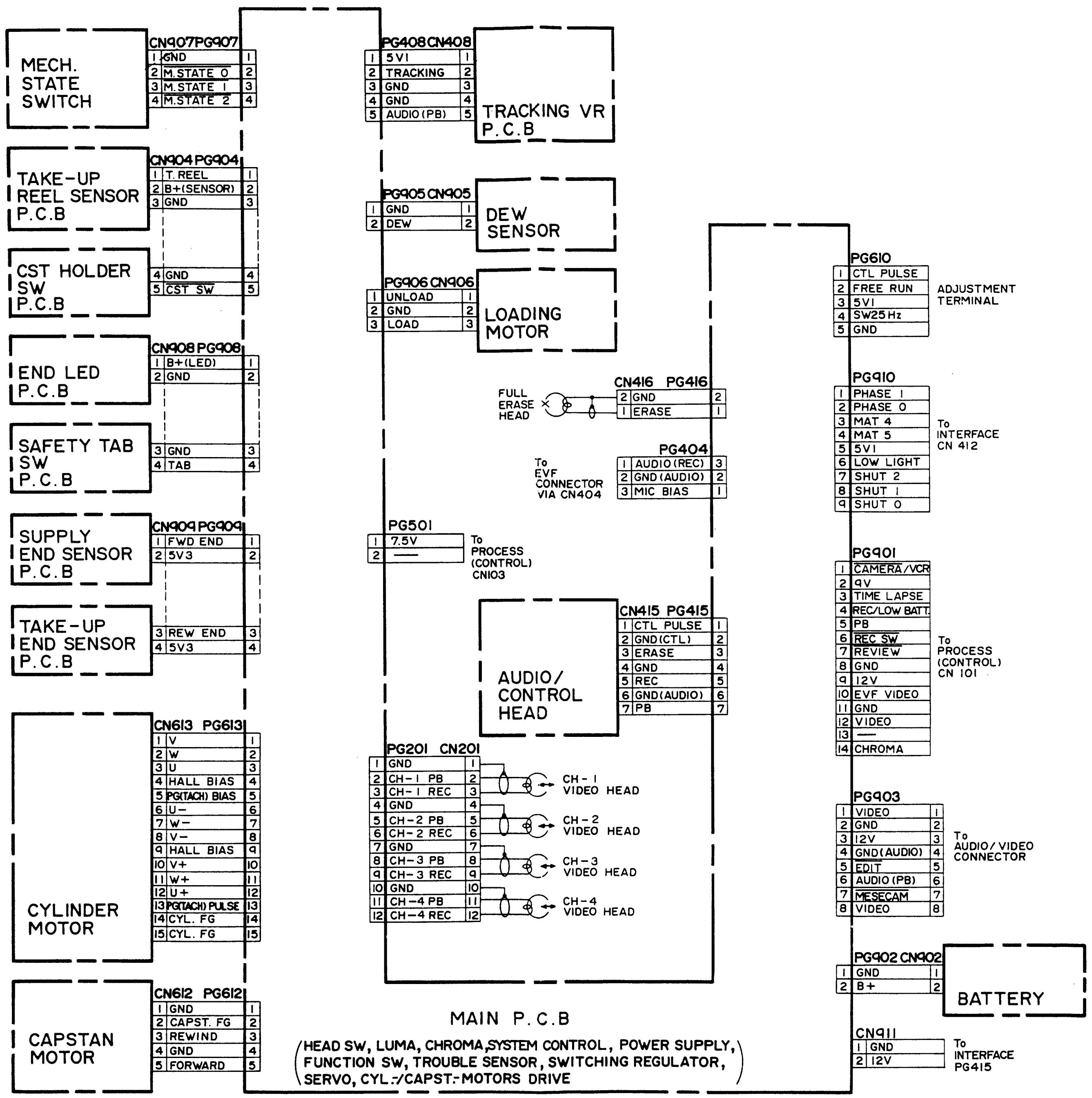
• ELECTRONIC VIEWFINDER


CN802
INDI. P.C.B
PG 802 CN 802
1 H. DEF ⊖ 1
2 H. DEF ⊕ 2
3 V. DEF ⊕ 3
4 V. DEF ⊖ 4
EVF DEFLECTION COIL
PG 801
9 REC/LOW BATT. 4
8 9V 3
7 EVF VIDEO 2
5 GND 1
CN 801
CS 801
G4 1
— 2
G3 3
G2 4
H,K 5
H 6
G1 7
— 8
To CRT SOCKET
ELECTRONIC VIEWFINDER (EVF) P.C.B
8 1 7 11 2 10 9 6 12 3 5 4
EVF CONNECTOR
1 3 7 4 6 5
CS 801 CRT SOCKET
PG461
3 MIC BIAS 3
2 GND (AUDIO) 2
1 AUDIO (REC) 1
CN 801
To EVF CONNECTOR
MIC JACK P.C.B
5 4 1 7 3 6
V801 CRT

• AUTO FOCUS


FOCUS SENSOR P.C.B
CN1A PG1A
5 B− 5
4 B OUT 4
3 V. REF 3
2 A OUT 2
1 B+ 1
FOCUS MOTOR
CN3A PG3A
1 MOTOR DRIVE 1
2 MOTOR DRIVE 2
LED P.C.B
CN2A PG2A
1 INFRARED 1
2 B+ (LED) 2
AUTO FOCUS P.C.B
CN5A
1 FOCUS AUTO
2 GND
3 12V
4 FOCUS ⊕
5 FOCUS ⊖
To INTERFACE PG 413

• VTR


MECH. STATE SWITCH
CN907 PG907
1 GND 1
2 M.STATE 0 2
3 M.STATE 1 3
4 M.STATE 2 4
TAKE-UP REEL SENSOR P.C.B
CN904 PG904
1 T.REEL 1
2 B+(SENSOR) 2
3 GND 3
CST HOLDER SW P.C.B
4 GND 4
5 CST SW 5
END LED P.C.B
CN908 PG908
1 B+(LED) 1
2 GND 2
SAFETY TAB SW P.C.B
3 GND 3
4 TAB 4
SUPPLY END SENSOR P.C.B
CN909 PG909
1 FWD END 1
2 5V3 2
TAKE-UP END SENSOR P.C.B
3 REW END 3
4 5V3 4
CYLINDER MOTOR
CN613 PG613
1 V 1
2 W 2
3 U 3
4 HALL BIAS 4
5 PG(TACH) BIAS 5
6 U− 6
7 W− 7
8 V− 8
9 HALL BIAS 9
10 V+ 10
11 W+ 11
12 U+ 12
13 PG(TACH) PULSE 13
14 CYL. FG 14
15 CYL. FG 15
CAPSTAN MOTOR
CN612 PG612
1 GND 1
2 CAPST. FG 2
3 REWIND 3
4 GND 4
5 FORWARD 5
PG408 CN408
1 5V1 1
2 TRACKING 2
3 GND 3
4 GND 4
5 AUDIO (PB) 5
TRACKING VR P.C.B
PG905 CN905
1 GND 1
2 DEW 2
DEW SENSOR
PG906 CN906
1 UNLOAD 1
2 GND 2
3 LOAD 3
LOADING MOTOR
FULL ERASE HEAD
CN416 PG416
2 GND 2
1 ERASE 1
To EVF CONNECTOR VIA CN404
PG404
1 AUDIO (REC) 3
2 GND (AUDIO) 2
3 MIC BIAS 1
PG501
1 7.5V
2 —
To PROCESS (CONTROL) CN103
AUDIO/ CONTROL HEAD
CN415 PG415
1 CTL PULSE 1
2 GND (CTL) 2
3 ERASE 3
4 GND 4
5 REC 5
6 GND (AUDIO) 6
7 PB 7
PG201 CN201
1 GND 1
2 CH-1 PB 2
3 CH-1 REC 3
4 GND 4
5 CH-2 PB 5
6 CH-2 REC 6
7 GND 7
8 CH-3 PB 8
9 CH-3 REC 9
10 GND 10
11 CH-4 PB 11
12 CH-4 REC 12
CH-1 VIDEO HEAD
CH-2 VIDEO HEAD
CH-3 VIDEO HEAD
CH-4 VIDEO HEAD
MAIN P.C.B
(HEAD SW, LUMA, CHROMA, SYSTEM CONTROL, POWER SUPPLY, FUNCTION SW, TROUBLE SENSOR, SWITCHING REGULATOR, SERVO, CYL.-/CAPST.-MOTORS DRIVE)
PG610
1 CTL PULSE
2 FREE RUN
3 5V1
4 SW25 Hz
5 GND
ADJUSTMENT TERMINAL
PG910
1 PHASE 1
2 PHASE 0
3 MAT 4
4 MAT 5
5 5V1
6 LOW LIGHT
7 SHUT 2
8 SHUT 1
9 SHUT 0
To INTERFACE CN 412
PG901
1 CAMERA/VCR
2 9V
3 TIME LAPSE
4 REC/LOW BATT.
5 PB
6 REC SW
7 REVIEW
8 GND
9 12V
10 EVF VIDEO
11 GND
12 VIDEO
13 —
14 CHROMA
To PROCESS (CONTROL) CN 101
PG903
1 VIDEO 1
2 GND 2
3 12V 3
4 GND (AUDIO) 4
5 EDIT 5
6 AUDIO (PB) 6
7 MESECAM 7
8 VIDEO 8
To AUDIO/ VIDEO CONNECTOR
PG902 CN902
1 GND 1
2 B+ 2
BATTERY
CN911
1 GND
2 12V
To INTERFACE PG415

SCHEMATIC DIAGRAMS	PAGE
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FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
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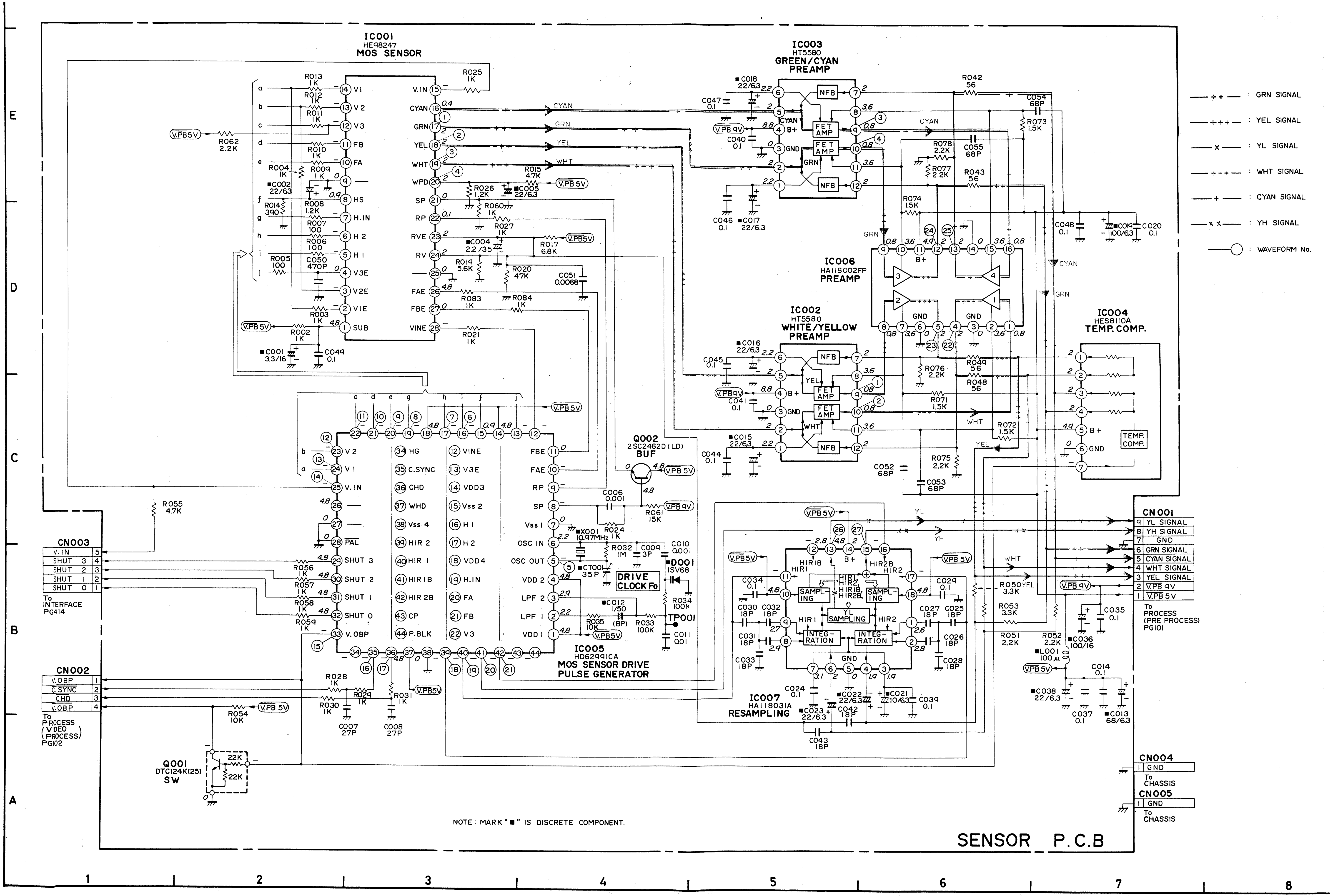
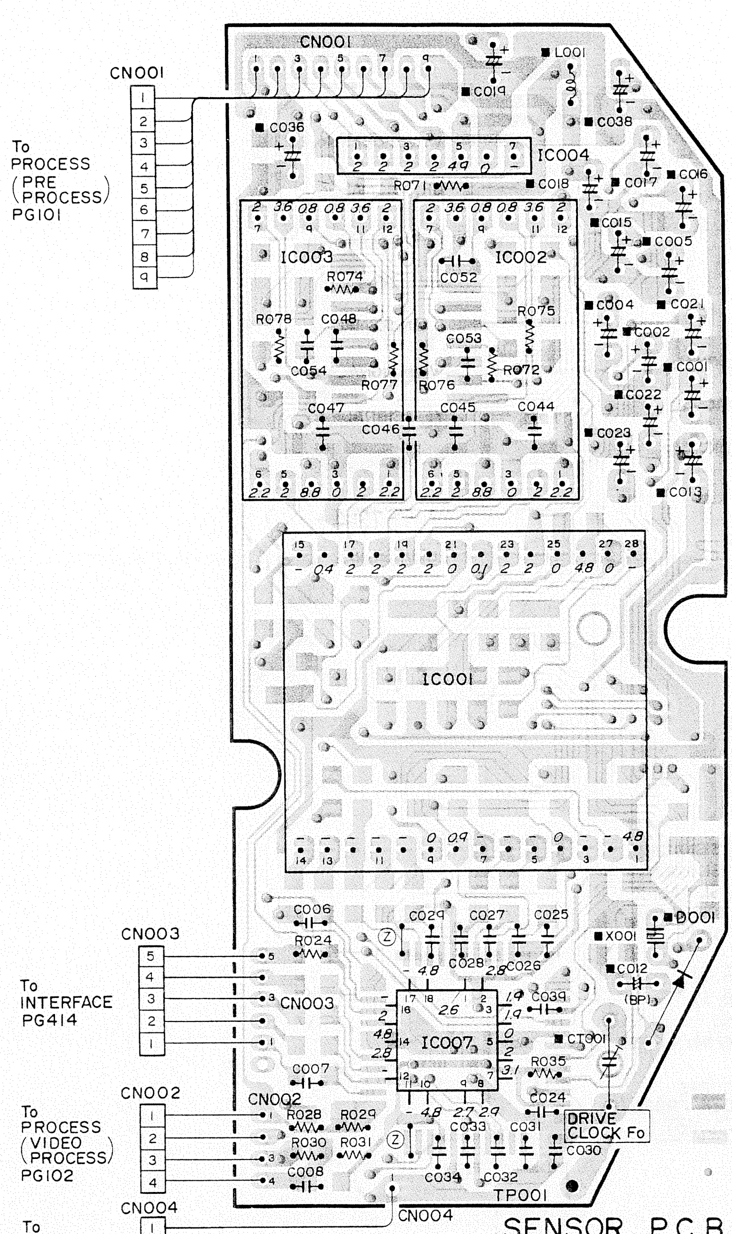
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

SENSOR SCHEMATIC DIAGRAM


IC001
HE98247
MOS SENSOR
IC003
HT5580
GREEN/CYAN
PREAMP
IC006
HA118002FP
PREAMP
IC002
HT5580
WHITE/YELLOW
PREAMP
IC004
HES8110A
TEMP. COMP.
TEMP. COMP.
IC005
HD62991CA
MOS SENSOR DRIVE
PULSE GENERATOR
IC007
HA118031A
RESAMPLING
Q002
2SC2462D(LD)
BUF
Q001
DTC124K(25)
SW
X001
10.97MHz
DRIVE CLOCK Fo
D001
1SV68
TP001
NFB
FET AMP
SAMPLING
YL SAMPLING
INTEGRATION
CYAN
GRN
YEL
WHT
YL
YH
V.PB 5V
V.PB 9V
CN001
9 YL SIGNAL
8 YH SIGNAL
7 GND
6 GRN SIGNAL
5 CYAN SIGNAL
4 WHT SIGNAL
3 YEL SIGNAL
2 V.PB 9V
1 V.PB 5V
To PROCESS (PRE PROCESS) PG101
CN002
1 V.OBP
2 C.SYNC
3 CHD
4 V.OBP
To PROCESS (VIDEO PROCESS) PG102
CN003
5 V.IN
4 SHUT 3
3 SHUT 2
2 SHUT 1
1 SHUT 0
To INTERFACE PG414
CN004
1 GND
To CHASSIS
CN005
1 GND
To CHASSIS
—++— : GRN SIGNAL
—+++— : YEL SIGNAL
—x— : YL SIGNAL
—+·+— : WHT SIGNAL
—+— : CYAN SIGNAL
—x x— : YH SIGNAL
—○ : WAVEFORM No.
SENSOR P.C.B
A
B
C
D
E
1
2
3
4
5
6
7
8

NOTE: MARK "■" IS DISCRETE COMPONENT.

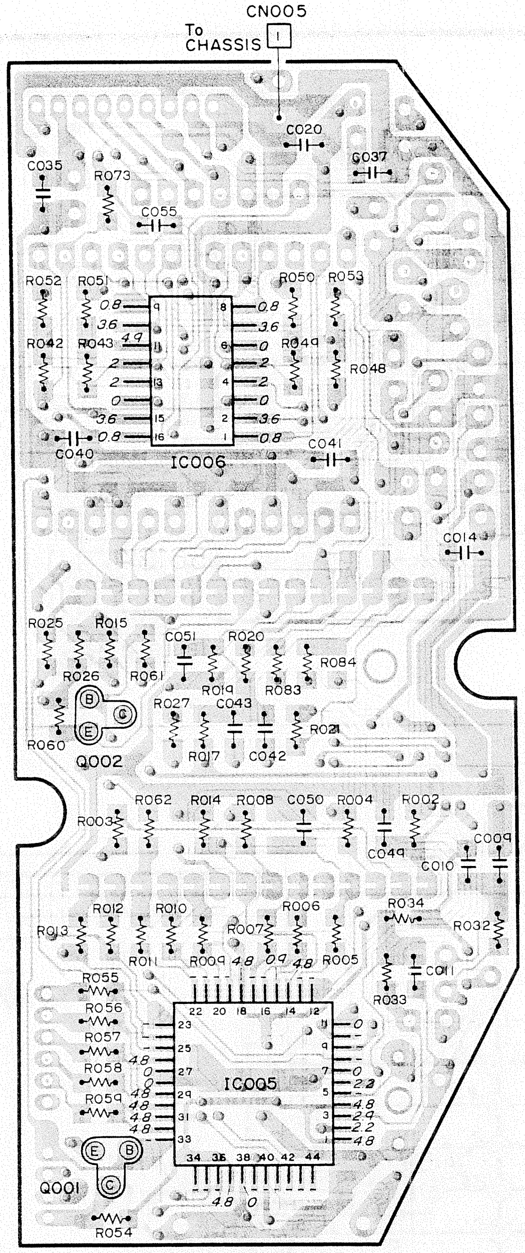
SENSOR CIRCUIT BOARD (COMPONENT SIDE)


CN001
To PROCESS (PRE PROCESS) PG101
CN003
To INTERFACE PG414
CN002
To PROCESS (VIDEO PROCESS) PG102
CN004
To CHASSIS
IC001
IC002
IC003
IC004
IC007
X001
D001
CT001
DRIVE CLOCK Fo
TP001

SENSOR P.C.B
(COMPONENT SIDE)

NOTE: MARK "■" IS DISCRETE COMPONENT.
MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.

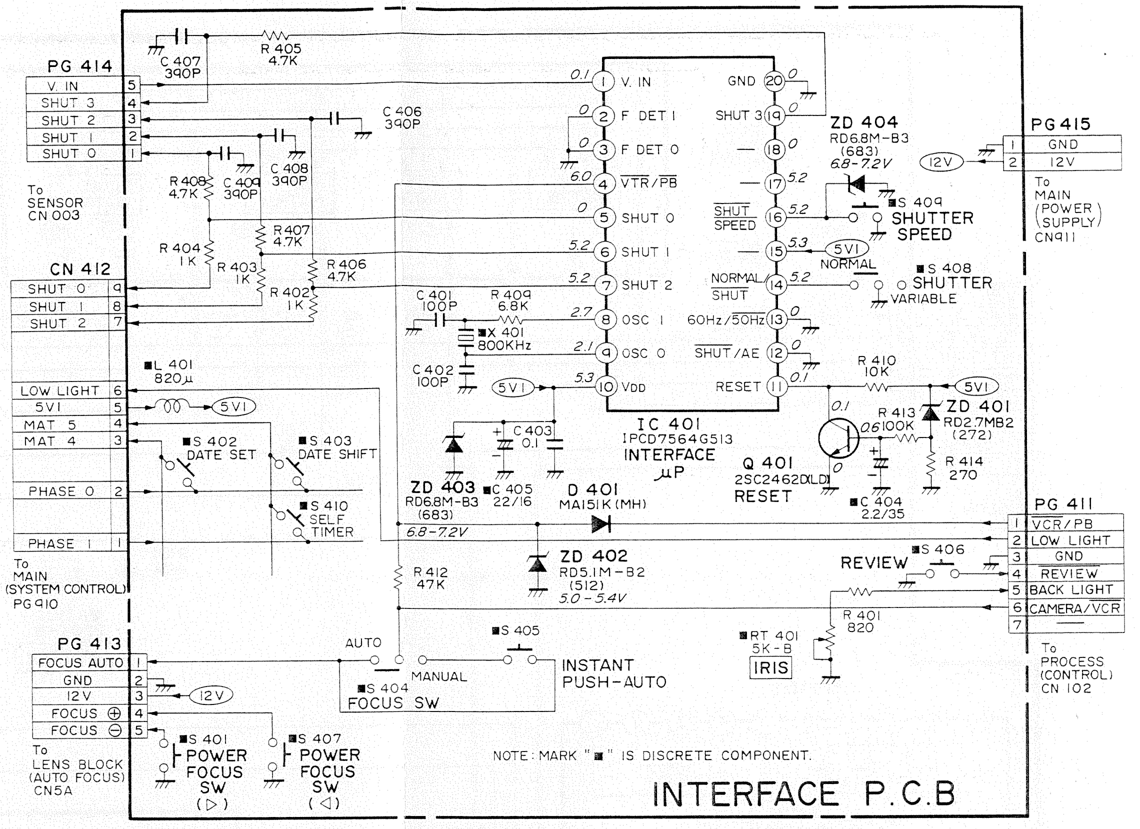
SENSOR CIRCUIT BOARD (SOLDER SIDE)


CN005
To CHASSIS
IC005
IC006
Q001
Q002

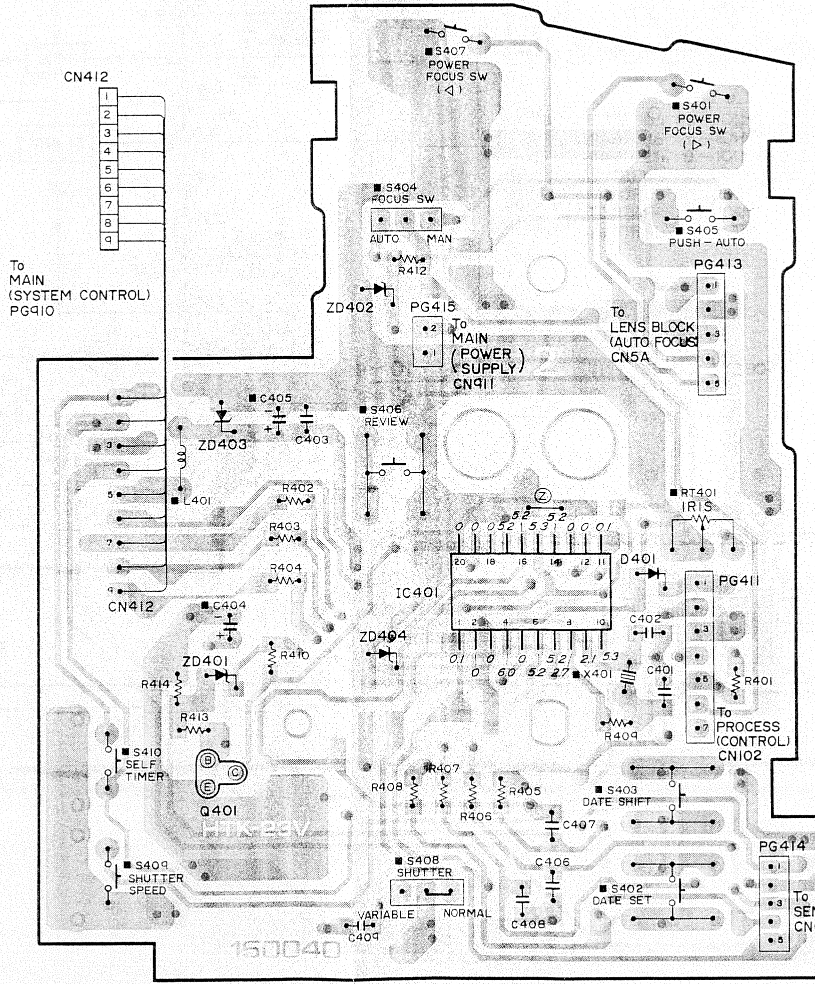
▨ : Soldered side
▭ : Parts side
• : Through hole

SENSOR P.C.B
(SOLDER SIDE)

INTERFACE SCHEMATIC DIAGRAM


PG 414
V. IN
SHUT 3
SHUT 2
SHUT 1
SHUT 0
To SENSOR CN 003
CN 412
SHUT 0
SHUT 1
SHUT 2
LOW LIGHT
5VI
MAT 5
MAT 4
PHASE 0
PHASE 1
To MAIN (SYSTEM CONTROL) PG910
PG 413
FOCUS AUTO
GND
12V
FOCUS ⊕
FOCUS ⊖
To LENS BLOCK (AUTO FOCUS) CN5A
IC 401
IPCD7564G513
INTERFACE µP
Q 401
2SC2462QLD
RESET
ZD 401
RD2.7MB2
ZD 402
RD5.1M-B2
ZD 403
RD6.8M-B3
ZD 404
RD6.8M-B3
D 401
MA151K (MH)
X 401
800KHz
■S 401 POWER FOCUS SW (▷)
■S 402 DATE SET
■S 403 DATE SHIFT
■S 404 FOCUS SW
AUTO
MANUAL
■S 405 INSTANT PUSH-AUTO
■S 406 REVIEW
■S 407 POWER FOCUS SW (◁)
■S 408 SHUTTER VARIABLE
NORMAL
■S 409 SHUTTER SPEED
■S 410 SELF TIMER
■RT 401 5K-B IRIS
PG415
GND
12V
To MAIN (POWER SUPPLY) CN911
PG 411
VCR/PB
LOW LIGHT
GND
REVIEW
BACK LIGHT
CAMERA/VCR
To PROCESS (CONTROL) CN 102
NOTE: MARK "■" IS DISCRETE COMPONENT.
INTERFACE P.C.B

INTERFACE CIRCUIT BOARD


CN412
To MAIN (SYSTEM CONTROL) PG910
■S407 POWER FOCUS SW (◁)
■S401 POWER FOCUS SW (▷)
■S404 FOCUS SW
AUTO
MAN
■S405 PUSH-AUTO
PG413
To LENS BLOCK (AUTO FOCUS) CN5A
PG415
To MAIN (POWER SUPPLY) CN911
ZD402
ZD403
■S406 REVIEW
■RT401 IRIS
IC401
D401
PG411
To PROCESS (CONTROL) CN102
ZD404
ZD401
Q401
■S410 SELF TIMER
■S409 SHUTTER SPEED
■S408 SHUTTER
VARIABLE
NORMAL
■S403 DATE SHIFT
■S402 DATE SET
PG414
To SENSOR CN003

NOTE: MARK "■" IS DISCRETE COMPONENT.
MARK "Ⓩ" IS LEADLESS JUMPER.

INTERFACE P.C.B

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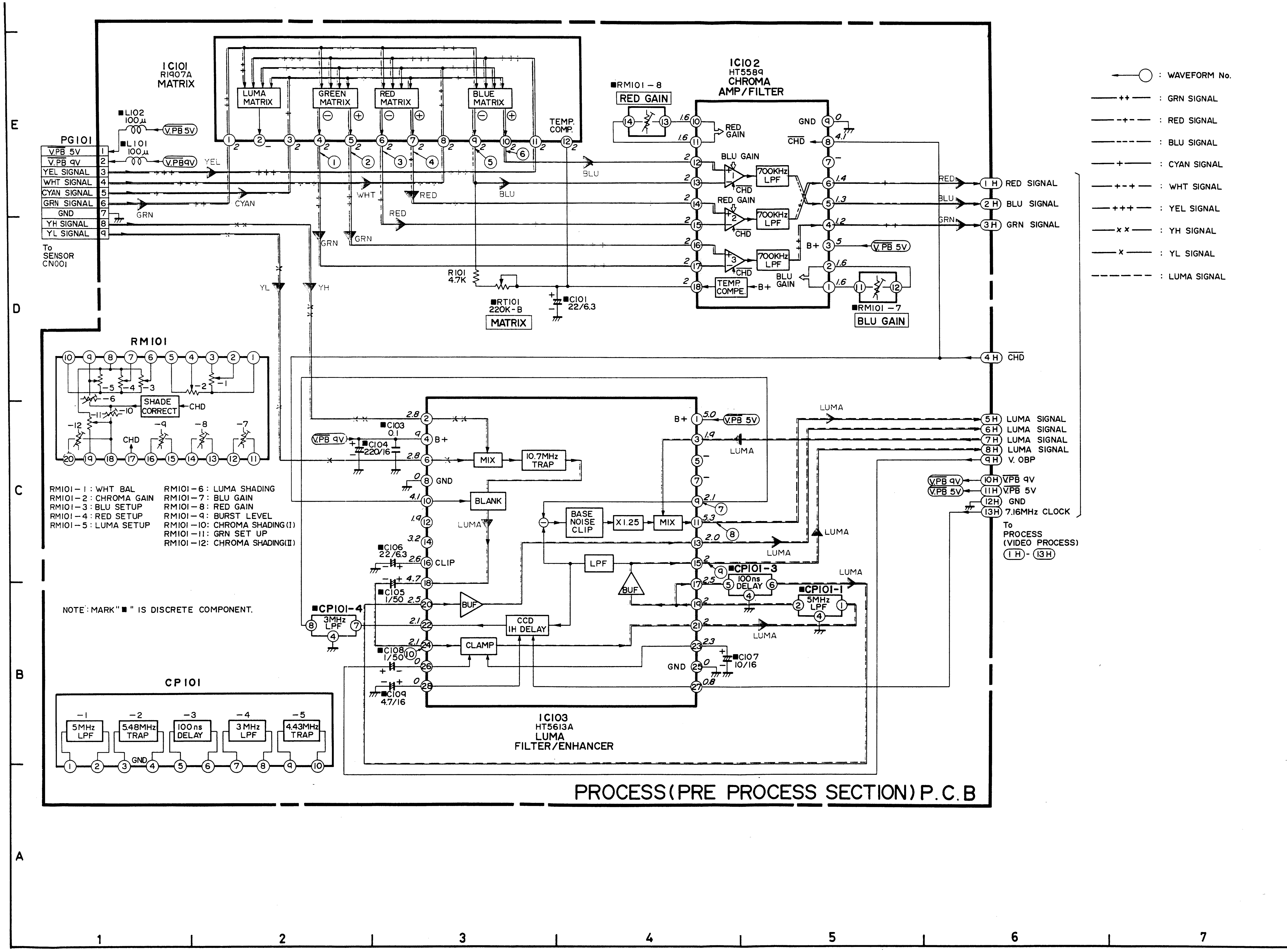
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

PROCESS (PRE PROCESS) SCHEMATIC DIAGRAM


IC101
R1907A
MATRIX
LUMA MATRIX
GREEN MATRIX
RED MATRIX
BLUE MATRIX
TEMP. COMP.
■L102 100µ
■L101 100µ
V.PB 5V
V.PB 9V
PG101
V.PB 5V
V.PB 9V
YEL SIGNAL
WHT SIGNAL
CYAN SIGNAL
GRN SIGNAL
GND
YH SIGNAL
YL SIGNAL
To SENSOR CN001
YEL
CYAN
GRN
WHT
RED
BLU
YL
YH
R101 4.7K
■RT101 220K-B
MATRIX
■C101 22/6.3
■RM101-8
RED GAIN
IC102
HT5589
CHROMA AMP/FILTER
RED GAIN
BLU GAIN
CHD
700KHz LPF
TEMP. COMPE.
B+
GND
BLU GAIN
■RM101-7
BLU GAIN
1H RED SIGNAL
2H BLU SIGNAL
3H GRN SIGNAL
4H CHD
5H LUMA SIGNAL
6H LUMA SIGNAL
7H LUMA SIGNAL
8H LUMA SIGNAL
9H V. OBP
10H V.PB 9V
11H V.PB 5V
12H GND
13H 7.16MHz CLOCK
To PROCESS (VIDEO PROCESS) (1H)-(13H)
RM101
SHADE CORRECT
CHD
IC103
HT5613A
LUMA FILTER/ENHANCER
■C103 0.1
■C104 220/16
■C106 22/6.3
■C105 1/50
■C108 1/50
■C109 4.7/16
■C107 10/16
MIX
10.7MHz TRAP
BLANK
BASE NOISE CLIP
X1.25
LPF
BUF
CCD 1H DELAY
CLAMP
CLIP
LUMA
■CP101-4
3MHz LPF
■CP101-3
100ns DELAY
■CP101-1
5MHz LPF
CP101
-1 5MHz LPF
-2 5.48MHz TRAP
-3 100ns DELAY
-4 3MHz LPF
-5 4.43MHz TRAP
GND
PROCESS (PRE PROCESS SECTION) P.C.B
: WAVEFORM No.
++ : GRN SIGNAL
-+- : RED SIGNAL
---- : BLU SIGNAL
+ : CYAN SIGNAL
+-+ : WHT SIGNAL
+++ : YEL SIGNAL
xx : YH SIGNAL
x : YL SIGNAL
------ : LUMA SIGNAL
E
D
C
B
A
1
2
3
4
5
6
7
8

RM101-1 : WHT BAL
RM101-2 : CHROMA GAIN
RM101-3 : BLU SETUP
RM101-4 : RED SETUP
RM101-5 : LUMA SETUP
RM101-6 : LUMA SHADING
RM101-7 : BLU GAIN
RM101-8 : RED GAIN
RM101-9 : BURST LEVEL
RM101-10 : CHROMA SHADING(I)
RM101-11 : GRN SET UP
RM101-12 : CHROMA SHADING(II)

NOTE: MARK "■" IS DISCRETE COMPONENT.

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HEAD SW	5-30
INTERFACE	5-10
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MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
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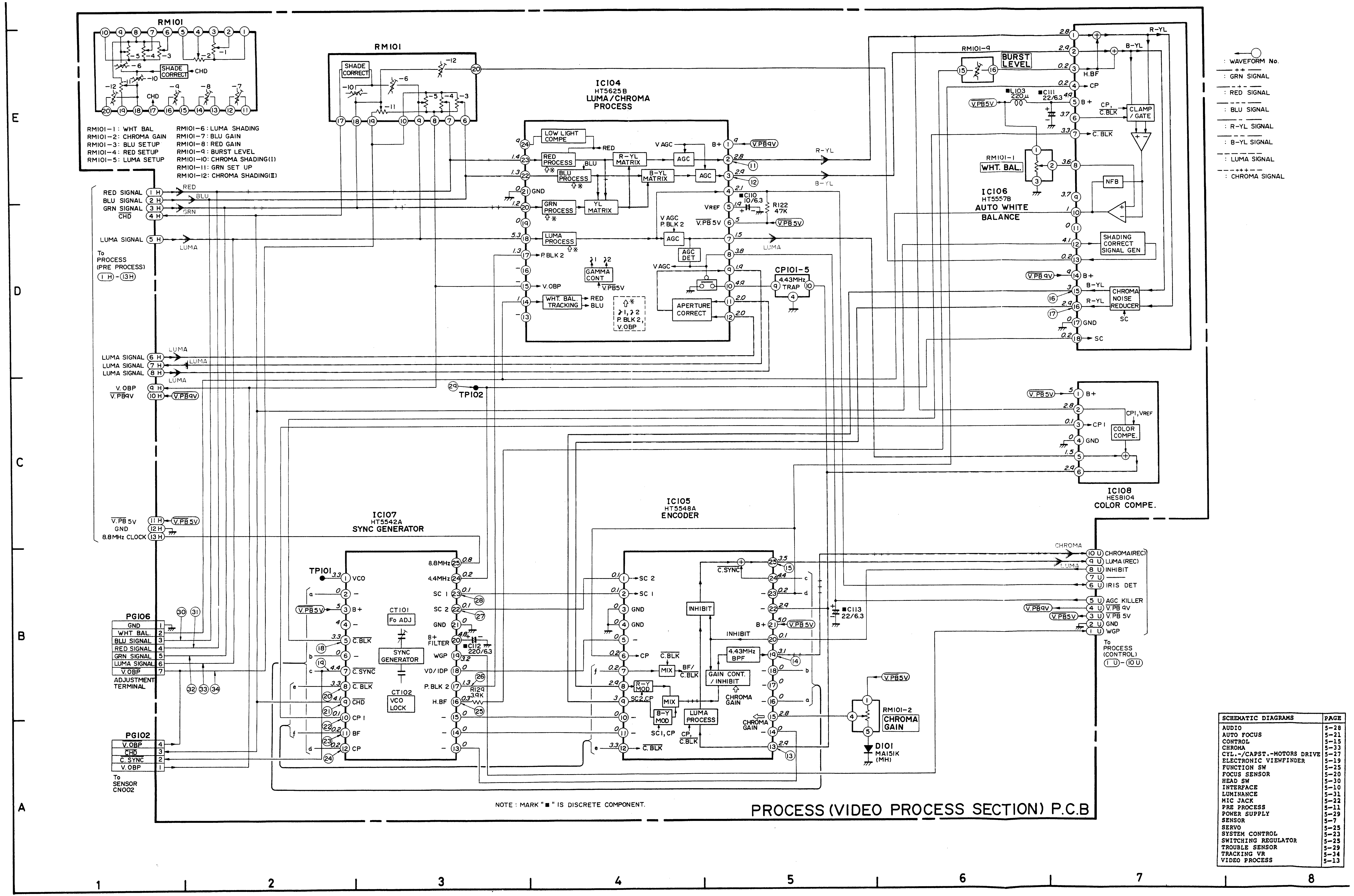
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

PROCESS (VIDEO PROCESS) SCHEMATIC DIAGRAM


RM101
SHADE CORRECT
CHD
RM101-1 : WHT BAL
RM101-2 : CHROMA GAIN
RM101-3 : BLU SETUP
RM101-4 : RED SETUP
RM101-5 : LUMA SETUP
RM101-6 : LUMA SHADING
RM101-7 : BLU GAIN
RM101-8 : RED GAIN
RM101-9 : BURST LEVEL
RM101-10 : CHROMA SHADING(I)
RM101-11 : GRN SET UP
RM101-12 : CHROMA SHADING(II)
IC104
HT5625B
LUMA/CHROMA PROCESS
LOW LIGHT COMPE
RED PROCESS
BLU PROCESS
GRN PROCESS
R-YL MATRIX
B-YL MATRIX
YL MATRIX
AGC
AGC DET
LUMA PROCESS
GAMMA CONT
WHT. BAL. TRACKING
APERTURE CORRECT
CP101-5
4.43MHz TRAP
V AGC
P.BLK 2
V.OBP
RED
BLU
GRN
LUMA
R-YL
B-YL
RED SIGNAL
BLU SIGNAL
GRN SIGNAL
CHD
LUMA SIGNAL
To PROCESS (PRE PROCESS) (1H)-(13H)
V.OBP
V.PB9V
V.PB 5V
GND
8.8MHz CLOCK
TP102
IC106
HT5557B
AUTO WHITE BALANCE
RM101-9
BURST LEVEL
RM101-1
WHT. BAL.
L103 220μ
C111 22/6.3
CLAMP / GATE
NFB
H.BF
CP
C.BLK
SHADING CORRECT SIGNAL GEN
CHROMA NOISE REDUCER
SC
IC108
HES8104
COLOR COMPE.
CP1, VREF
IC107
HT5542A
SYNC GENERATOR
TP101
VCO
CT101
Fo ADJ
CT102
VCO LOCK
8.8MHz
4.4MHz
SC 1
SC 2
B+ FILTER
WGP
VD/IDP
C112 220/6.3
R129 3.9K
IC105
HT5548A
ENCODER
INHIBIT
C.SYNC
4.43MHz BPF
GAIN CONT. / INHIBIT
CHROMA GAIN
MIX
R-Y MOD
B-Y MOD
LUMA PROCESS
SC1, CP
C113 22/6.3
RM101-2
CHROMA GAIN
D101
MA151K (MH)
CHROMA(REC)
LUMA (REC)
INHIBIT
IRIS DET
AGC KILLER
V.PB 9V
V.PB 5V
GND
WGP
To PROCESS (CONTROL) (1U)-(10U)
PG106
GND
WHT BAL.
BLU SIGNAL
RED SIGNAL
GRN SIGNAL
LUMA SIGNAL
V.OBP
ADJUSTMENT TERMINAL
PG102
V.OBP
CHD
C. SYNC
V. OBP
To SENSOR CN002
: WAVEFORM No.
: GRN SIGNAL
: RED SIGNAL
: BLU SIGNAL
: R-YL SIGNAL
: B-YL SIGNAL
: LUMA SIGNAL
: CHROMA SIGNAL
NOTE : MARK "■" IS DISCRETE COMPONENT.
PROCESS (VIDEO PROCESS SECTION) P.C.B
A
B
C
D
E
1
2
3
4
5
6
7
8

SCHEMATIC DIAGRAMS	PAGE
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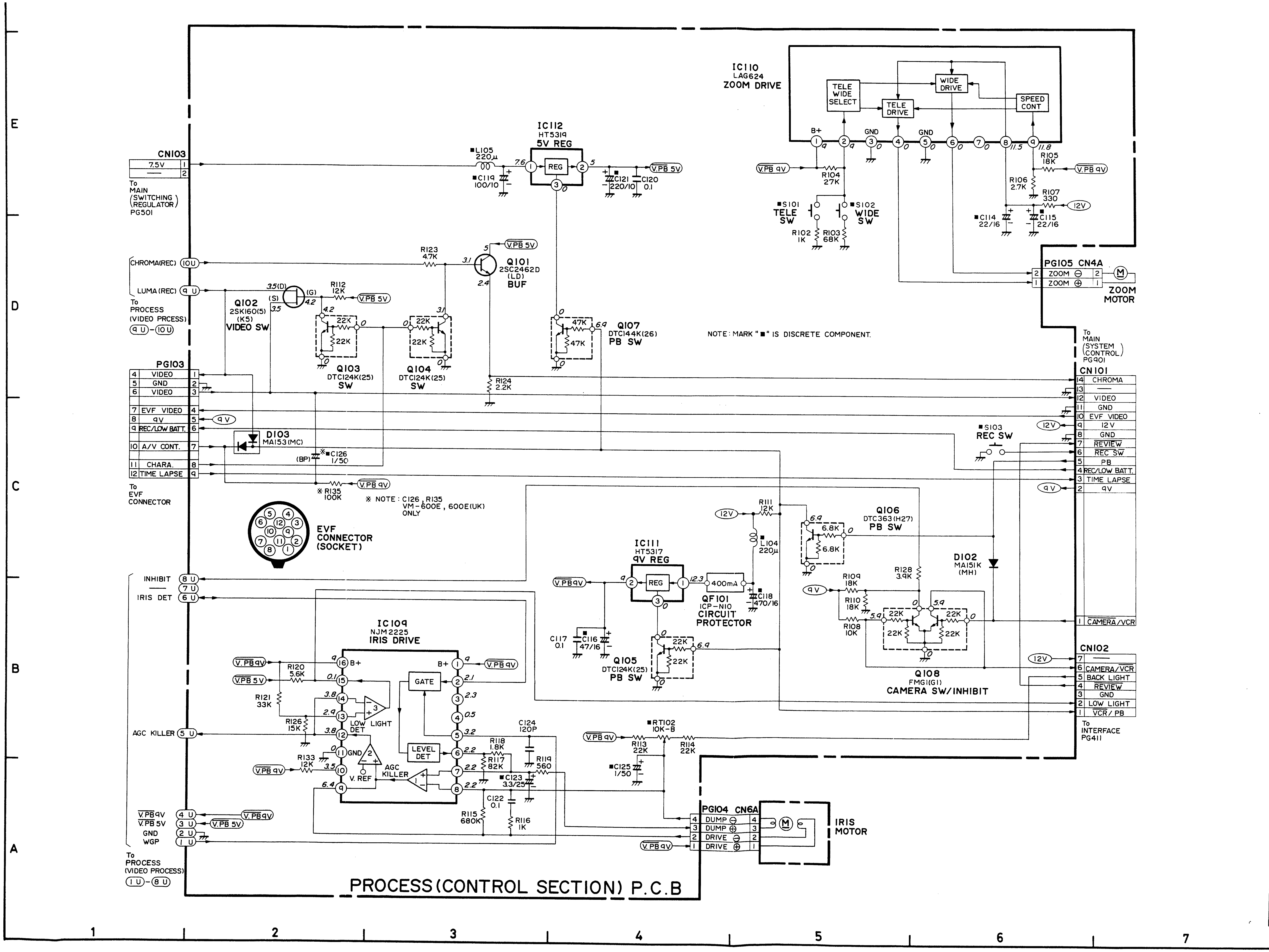
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

PROCESS (CONTROL) SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
CN103
7.5V
To MAIN (SWITCHING REGULATOR) PG501
■L105 220μ
■C119 100/10
IC112 HT5319 5V REG
REG
V.PB 5V
■C121 220/10
C120 0.1
IC110 LAG624 ZOOM DRIVE
TELE WIDE SELECT
TELE DRIVE
WIDE DRIVE
SPEED CONT
B+
GND
V.PB 9V
R104 27K
R105 18K
R106 2.7K
R107 330
12V
■S101 TELE SW
■S102 WIDE SW
R102 1K
R103 68K
■C114 22/16
■C115 22/16
PG105 CN4A
ZOOM ⊖
ZOOM ⊕
ZOOM MOTOR
CHROMA(REC) 10U
LUMA (REC) 9U
To PROCESS (VIDEO PRCESS) 9U-10U
R123 4.7K
Q101 2SC2462D (LD) BUF
R112 12K
Q102 2SK160(5) (K5) VIDEO SW
Q103 DTC124K(25) SW
Q104 DTC124K(25) SW
Q107 DTC144K(26) PB SW
R124 2.2K
NOTE: MARK "■" IS DISCRETE COMPONENT.
To MAIN (SYSTEM CONTROL) PG901
CN101
CHROMA
VIDEO
GND
EVF VIDEO
12V
REVIEW
REC SW
PB
REC/LOW BATT.
TIME LAPSE
9V
PG103
VIDEO
GND
EVF VIDEO
REC/LOW BATT.
A/V CONT.
CHARA.
TIME LAPSE
D103 MA153(MC)
(BP)
※■C126 1/50
※R135 100K
※ NOTE: C126, R135 VM-600E, 600E(UK) ONLY
To EVF CONNECTOR
EVF CONNECTOR (SOCKET)
■S103 REC SW
R111 12K
■L104 220μ
Q106 DTC363(H27) PB SW
IC111 HT5317 9V REG
400mA
QF101 ICP-N10 CIRCUIT PROTECTOR
■C118 470/16
D102 MA151K (MH)
R128 3.9K
R109 18K
R110 18K
R108 10K
Q108 FMG1(G1) CAMERA SW/INHIBIT
CAMERA/VCR
C117 0.1
■C116 47/16
Q105 DTC124K(25) PB SW
INHIBIT 8U
7U
IRIS DET 6U
IC109 NJM2225 IRIS DRIVE
GATE
LOW LIGHT DET
LEVEL DET
AGC KILLER
V. REF
R120 5.6K
R121 33K
R126 15K
R133 12K
AGC KILLER 5U
C124 120P
R118 1.8K
R117 82K
R119 560
■C123 3.3/25
C122 0.1
R115 680K
R116 1K
■RT102 10K-B
R113 22K
R114 22K
■C125 1/50
CN102
BACK LIGHT
LOW LIGHT
VCR/PB
To INTERFACE PG411
PG104 CN6A
DUMP ⊖
DUMP ⊕
DRIVE ⊖
DRIVE ⊕
IRIS MOTOR
V.PB9V 4U
V.PB5V 3U
GND 2U
WGP 1U
To PROCESS (VIDEO PROCESS) 1U-8U
PROCESS(CONTROL SECTION) P.C.B

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INTERFACE	5-10
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MIC JACK	5-22
PRE PROCESS	5-11
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SENSOR	5-7
SERVO	5-25
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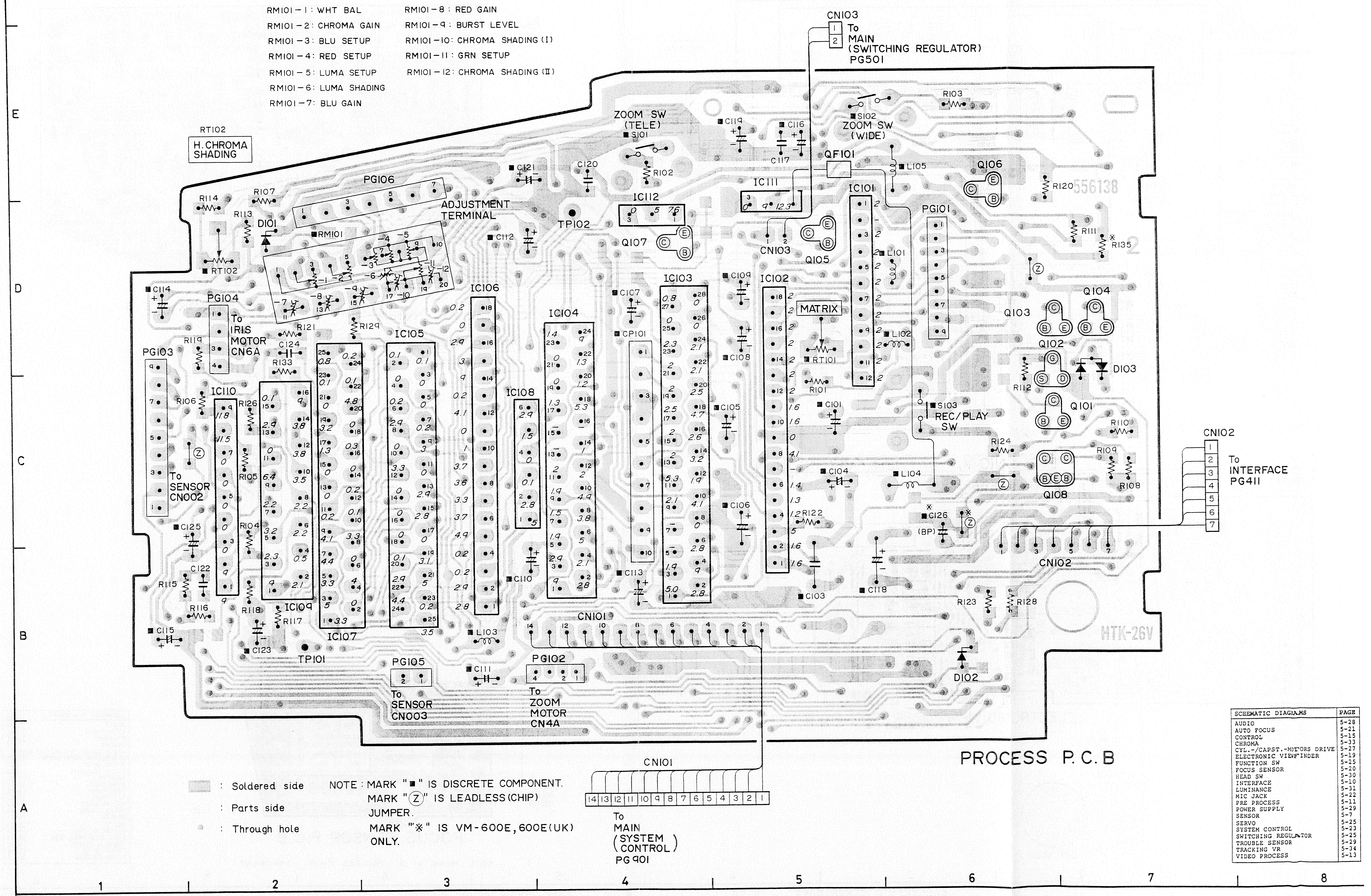
TRACKING VR	5-34
VIDEO PROCESS	5-13

8

PROCESS CIRCUIT BOARD


RM101-1: WHT BAL
RM101-2: CHROMA GAIN
RM101-3: BLU SETUP
RM101-4: RED SETUP
RM101-5: LUMA SETUP
RM101-6: LUMA SHADING
RM101-7: BLU GAIN
RM101-8: RED GAIN
RM101-9: BURST LEVEL
RM101-10: CHROMA SHADING (I)
RM101-11: GRN SETUP
RM101-12: CHROMA SHADING (II)
RT102
H. CHROMA SHADING
CN103
To MAIN (SWITCHING REGULATOR) PG501
ZOOM SW (TELE) S101
ZOOM SW (WIDE) S102
QF101
ADJUSTMENT TERMINAL
PG106
RM101
TP102
IC111
IC112
IC101
PG101
Q106
Q107
Q105
IC106
IC104
IC103
IC102
MATRIX
RT101
Q103
Q104
Q102
Q101
D103
D101
PG104
To IRIS MOTOR CN6A
PG103
To SENSOR CN002
IC110
IC109
IC107
IC105
IC108
S103
REC/PLAY SW
Q108
CN102
To INTERFACE PG411
CN101
PG105
To SENSOR CN003
PG102
To ZOOM MOTOR CN4A
TP101
D102
HTK-26V
PROCESS P.C.B
To MAIN (SYSTEM CONTROL) PG901
1
2
3
4
5
6
7
8
A
B
C
D
E

▨ : Soldered side

: Parts side

● : Through hole

NOTE : MARK "■" IS DISCRETE COMPONENT.
MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.
MARK "※" IS VM-600E, 600E(UK) ONLY.

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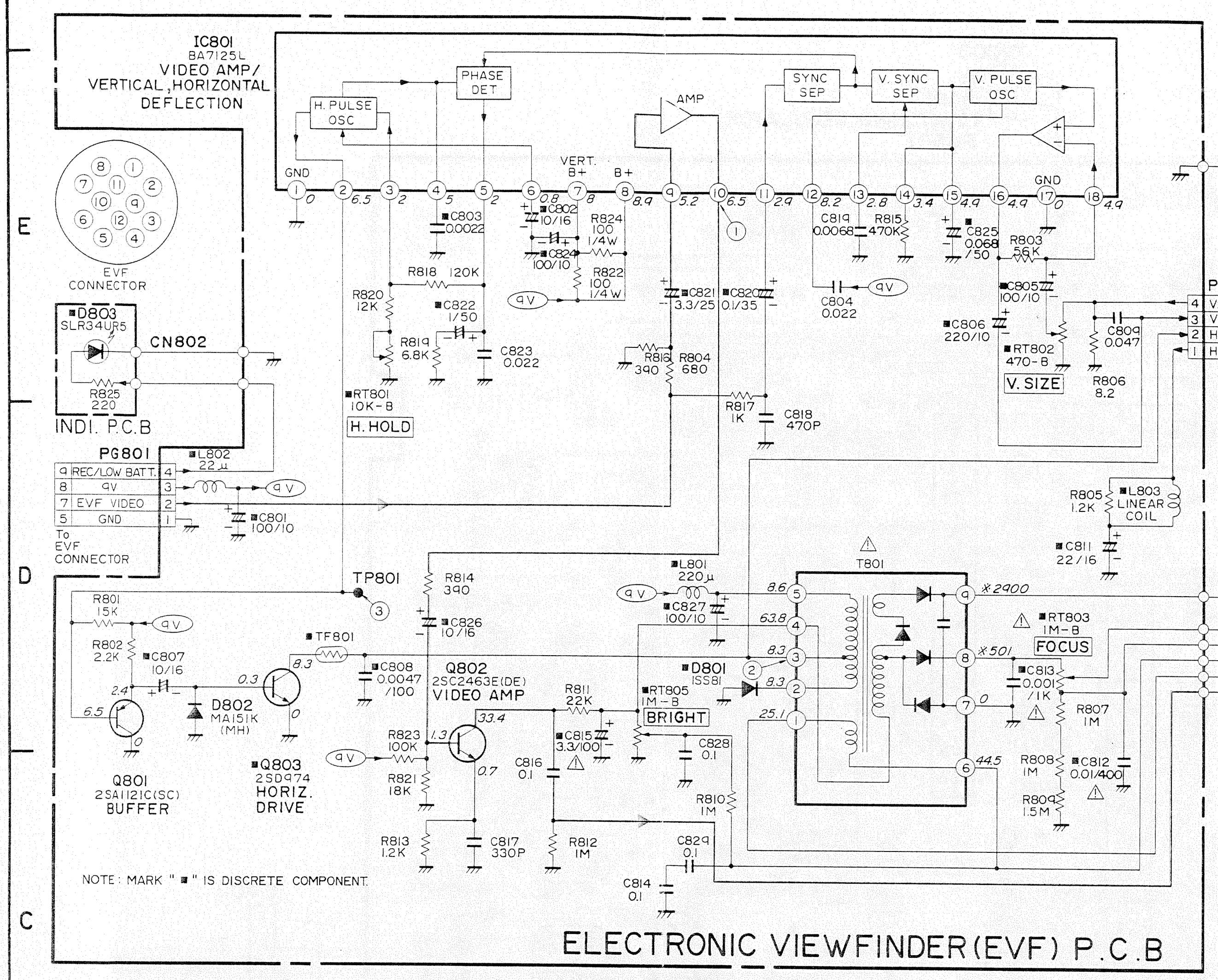
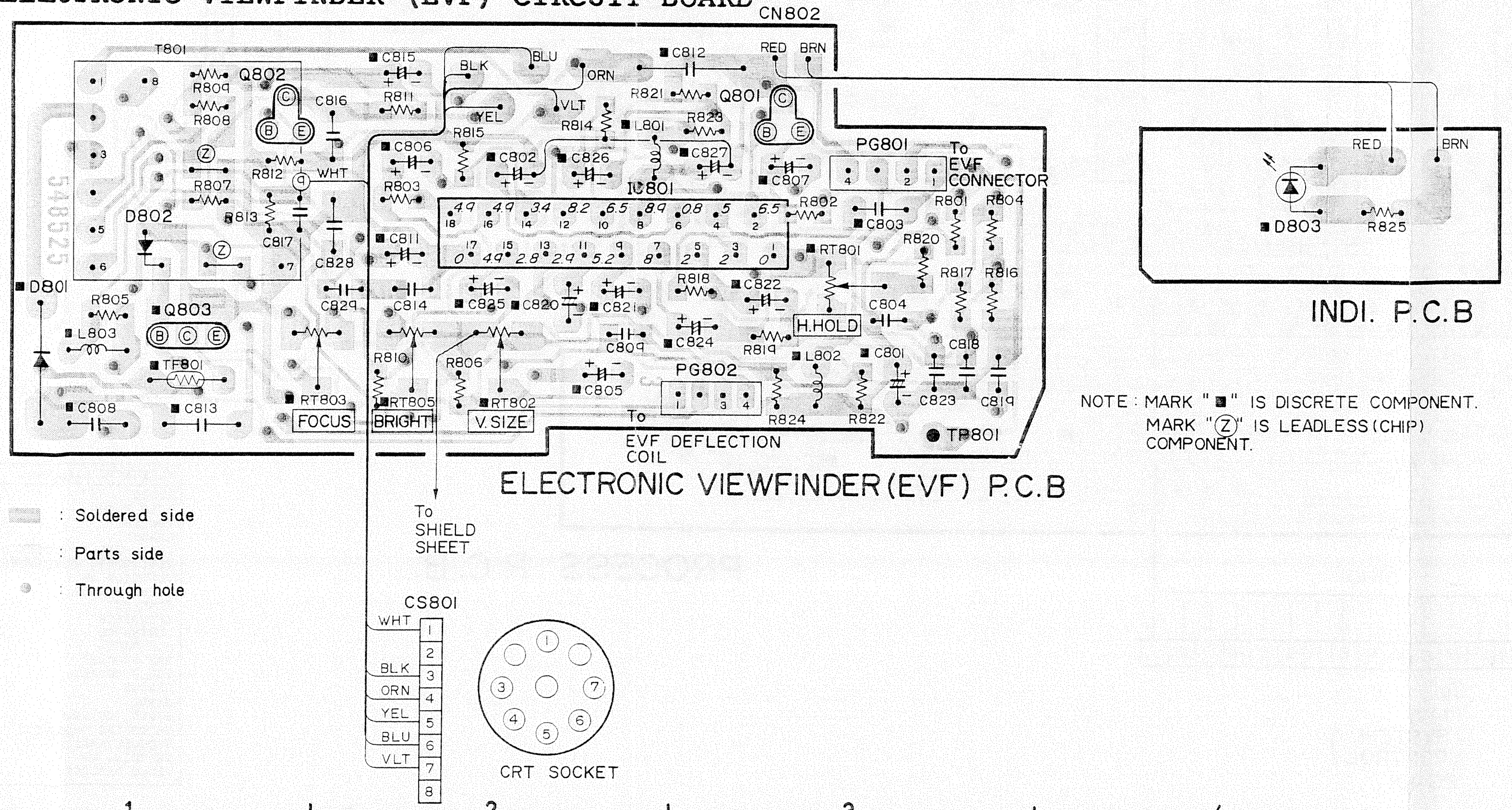
VIDEO PROCESS	5-13

ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM

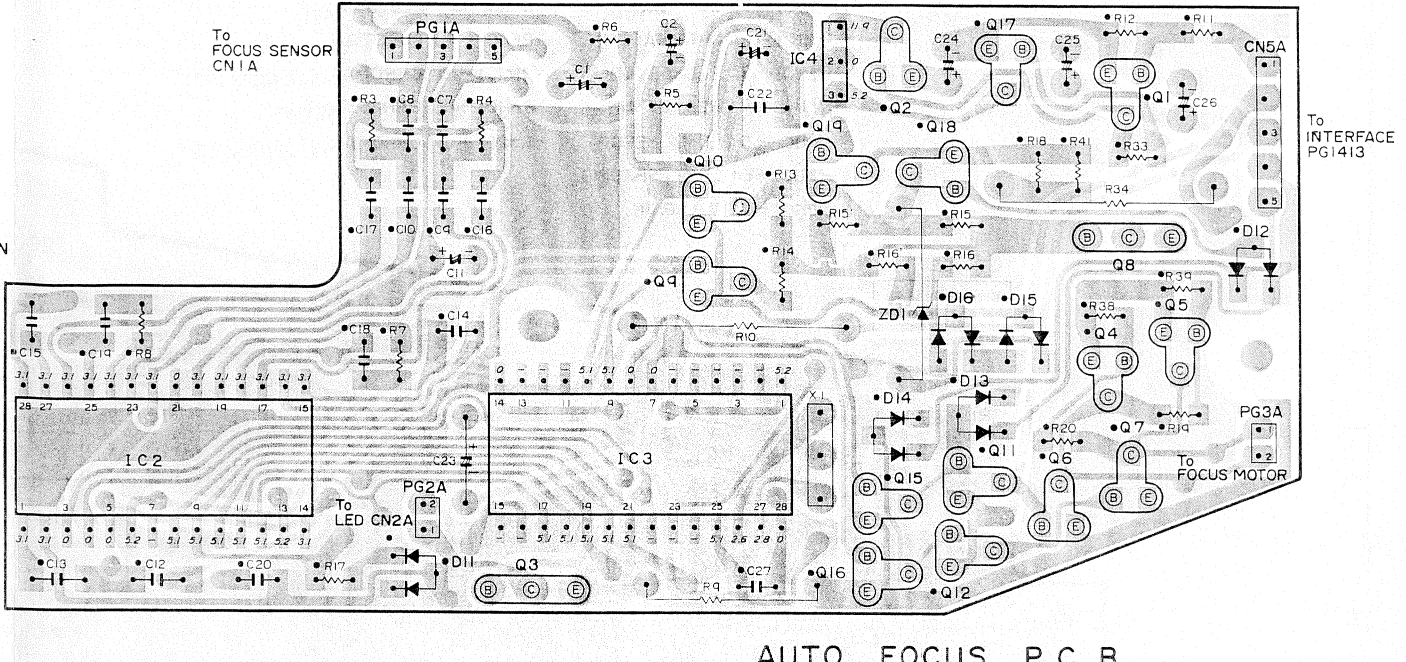

IC801
BA7125L
VIDEO AMP/
VERTICAL, HORIZONTAL
DEFLECTION
H. PULSE OSC
PHASE DET
AMP
SYNC SEP
V. SYNC SEP
V. PULSE OSC
: VIDEO SIGNAL
GND
VERT. B+
B+
To SHIELD SHEET
EVF DEFLECTION COIL
PG802
V. DEF
H. DEF
VERT.
HORIZ.
CN802
EVF CONNECTOR
D803
SLR34UR5
R825 220
INDI. P.C.B
PG801
REC/LOW BATT.
EVF VIDEO
GND
To EVF CONNECTOR
H. HOLD
RT801 10K-B
V. SIZE
RT802 470-B
TP801
T801
Q801
2SA1121C(SC)
BUFFER
D802
MA151K
(MH)
Q803
2SD974
HORIZ. DRIVE
Q802
2SC2463E(DE)
VIDEO AMP
D801
1SS81
RT805 1M-B
BRIGHT
RT803 1M-B
FOCUS
CS801
G4
G3
G2
H, K
H
G1
V801
CRT
CS801
CRT SOCKET
NOTE : MARK "■" IS DISCRETE COMPONENT.
ELECTRONIC VIEWFINDER (EVF) P.C.B

ELECTRONIC VIEWFINDER (EVF) CIRCUIT BOARD


CN802
T801
Q802
Q801
IC801
PG801
To EVF CONNECTOR
PG802
To EVF DEFLECTION COIL
H.HOLD
FOCUS
BRIGHT
V.SIZE
TP801
D801
D802
Q803
To SHIELD SHEET
CS801
WHT
BLK
ORN
YEL
BLU
VLT
CRT SOCKET
RED
BRN
D803
R825
INDI. P.C.B
ELECTRONIC VIEWFINDER (EVF) P.C.B
: Soldered side
: Parts side
: Through hole

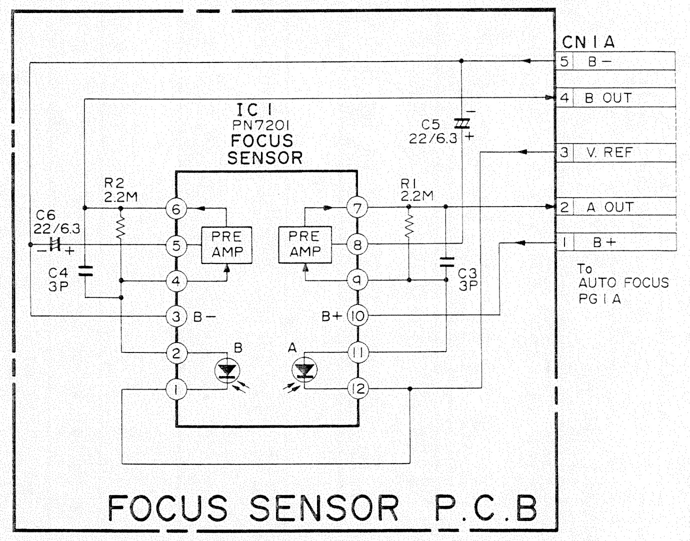
NOTE : MARK "■" IS DISCRETE COMPONENT.
MARK "Ⓩ" IS LEADLESS (CHIP) COMPONENT.

AUTO FOCUS CIRCUIT BOARD

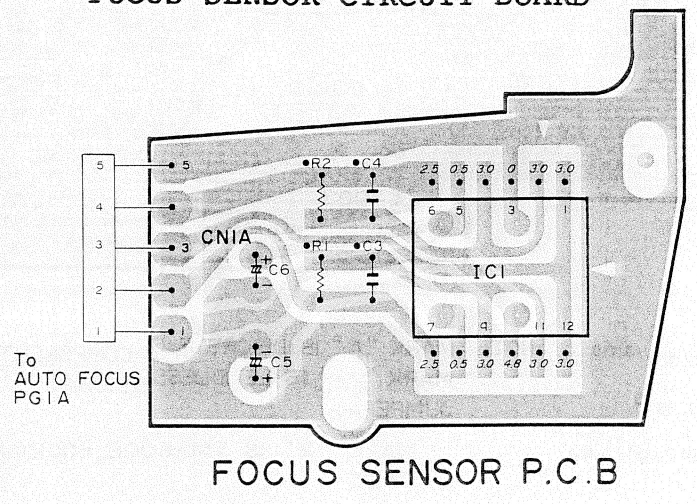

To FOCUS SENSOR CN1A
PG1A
IC4
CN5A
To INTERFACE PG1413
IC2
IC3
PG2A
To LED CN2A
PG3A
To FOCUS MOTOR
Q17
Q2
Q18
Q19
Q10
Q9
Q1
Q8
Q5
Q4
Q7
Q6
Q11
Q15
Q16
Q12
Q3
D11
D12
D13
D14
D15
D16
ZD1
AUTO FOCUS P.C.B

NOTE : MARK "•" IS LEADLESS (CHIP) COMPONENT.

FOCUS SENSOR SCHEMATIC DIAGRAM


CN1A
B−
B OUT
V. REF
A OUT
B+
IC1
PN7201
FOCUS SENSOR
PRE AMP
PRE AMP
R2 2.2M
R1 2.2M
C5 22/6.3
C6 22/6.3
C4 3P
C3 3P
B−
B+
B
A
To AUTO FOCUS PG1A
FOCUS SENSOR P.C.B

FOCUS SENSOR CIRCUIT BOARD


CN1A
IC1
R2
C4
R1
C3
C6
C5
To AUTO FOCUS PG1A
FOCUS SENSOR P.C.B

NOTE : MARK "•" IS LEADLESS (CHIP) COMPONENT.

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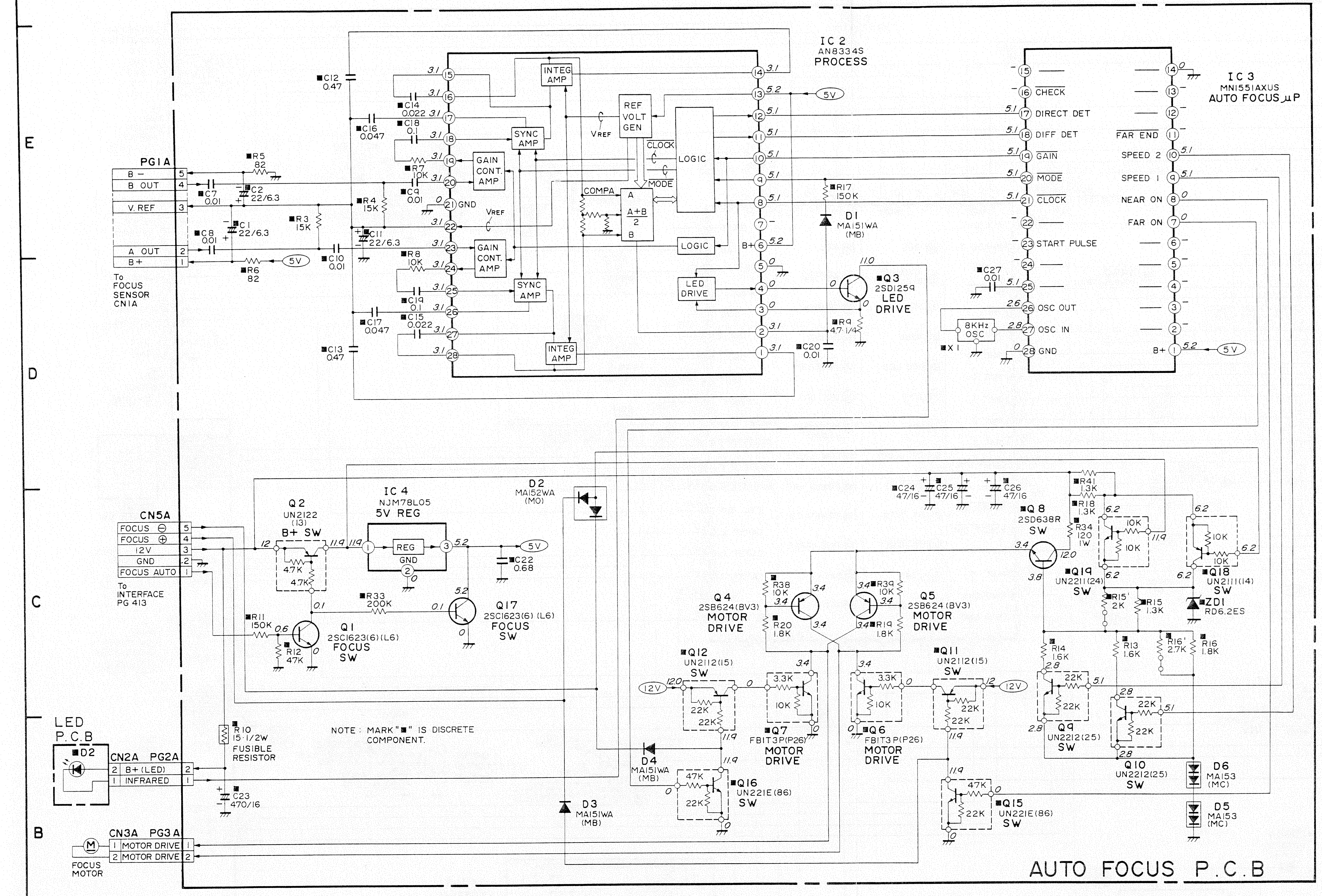
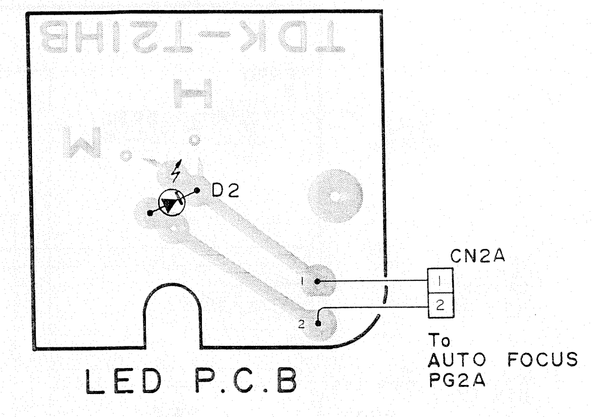
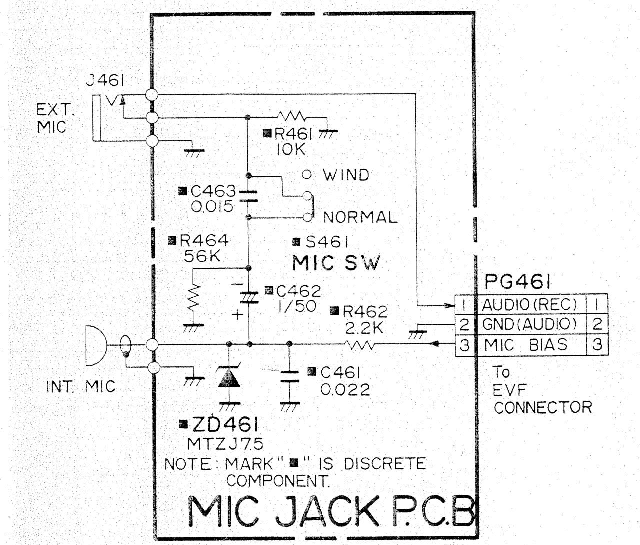
AUTO FOCUS SCEMATIC DIAGRAM


IC 2
AN8334S
PROCESS
IC 3
MN15511AXUS
AUTO FOCUS µP
PG1A
To FOCUS SENSOR CN1A
B −
B OUT
V. REF
A OUT
B+
INTEG AMP
SYNC AMP
GAIN CONT. AMP
REF VOLT GEN
LOGIC
COMPA
CLOCK
MODE
LED DRIVE
CHECK
DIRECT DET
DIFF DET
GAIN
MODE
CLOCK
START PULSE
OSC OUT
OSC IN
GND
FAR END
SPEED 2
SPEED 1
NEAR ON
FAR ON
8kHz OSC
X1
Q3 2SD1259 LED DRIVE
D1 MA151WA (MB)
CN5A
FOCUS ⊖
FOCUS ⊕
12V
GND
FOCUS AUTO
To INTERFACE PG 413
IC 4 NJM78L05 5V REG
Q2 UN2122 (13) B+ SW
Q1 2SC1623(6)(L6) FOCUS SW
Q17 2SC1623(6) (L6) FOCUS SW
D2 MA152WA (M0)
Q4 2SB624(BV3) MOTOR DRIVE
Q5 2SB624(BV3) MOTOR DRIVE
Q8 2SD638R SW
Q19 UN2211(24) SW
Q18 UN2111(14) SW
ZD1 RD6.2ES
Q12 UN2112(15) SW
Q7 FB1T3P(P26) MOTOR DRIVE
Q6 FB1T3P(P26) MOTOR DRIVE
Q11 UN2112(15) SW
Q9 UN2212(25) SW
Q10 UN2212(25) SW
Q16 UN221E(86) SW
Q15 UN221E(86) SW
D4 MA151WA (MB)
D3 MA151WA (MB)
D6 MA153 (MC)
D5 MA153 (MC)
R10 15 1/2W FUSIBLE RESISTOR
C23 470/16
LED P.C.B
D2
CN2A PG2A
B+ (LED)
INFRARED
CN3A PG3A
MOTOR DRIVE
MOTOR DRIVE
FOCUS MOTOR
NOTE : MARK "■" IS DISCRETE COMPONENT.
AUTO FOCUS P.C.B

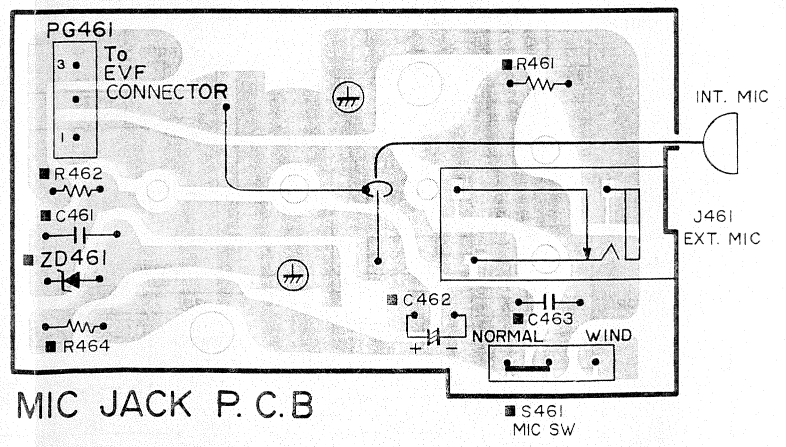
LED CIRCUIT BOARD


D2
CN2A
To AUTO FOCUS PG2A
LED P.C.B

MIC JACK SCHEMATIC DIAGRAM


J461
EXT. MIC
R461 10K
C463 0.015
WIND
NORMAL
R464 56K
S461 MIC SW
C462 1/50
R462 2.2K
PG461
AUDIO (REC)
GND (AUDIO)
MIC BIAS
To EVF CONNECTOR
INT. MIC
C461 0.022
ZD461 MTZJ7.5
NOTE : MARK "■" IS DISCRETE COMPONENT.
MIC JACK P.C.B

MIC JACK CIRCUIT BOARD


PG461
To EVF CONNECTOR
R461
INT. MIC
R462
C461
ZD461
J461 EXT. MIC
C462
C463
NORMAL
WIND
R464
S461 MIC SW
MIC JACK P.C.B

NOTE : MARK "■" IS DISCRETE COMPONENT.

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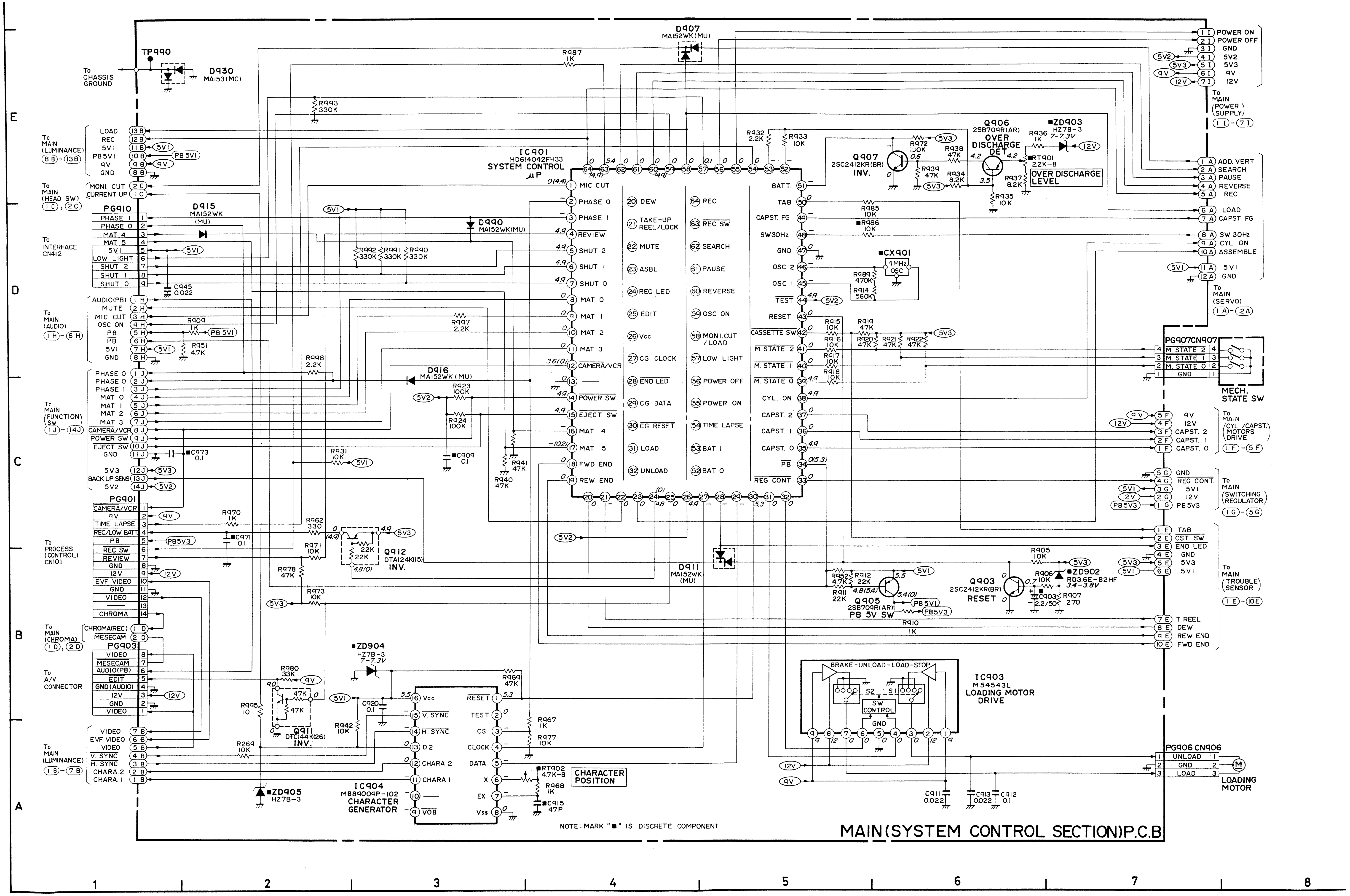
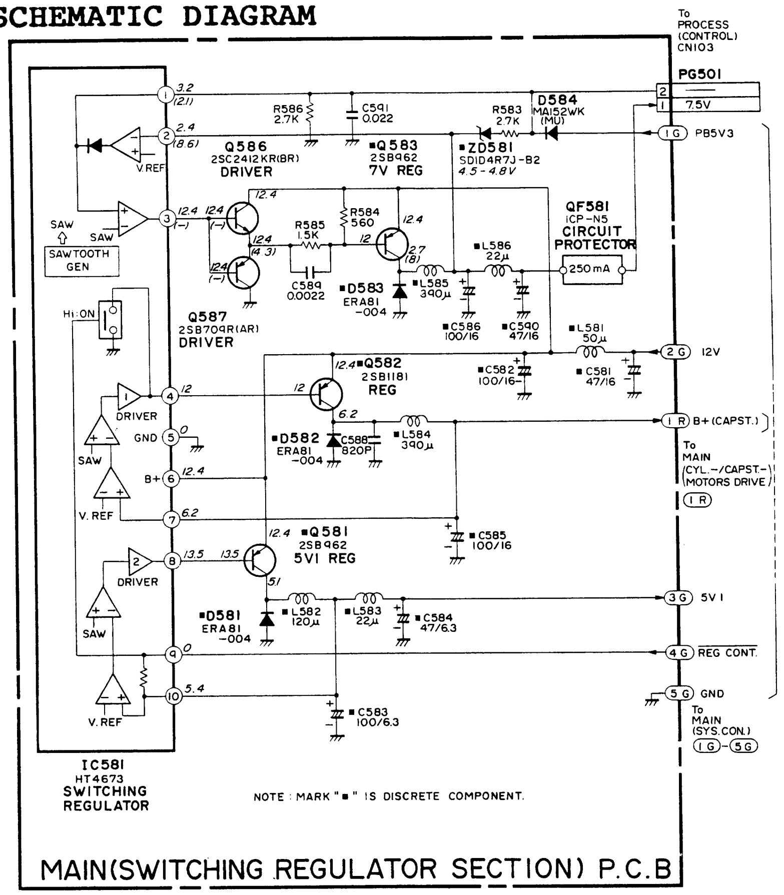
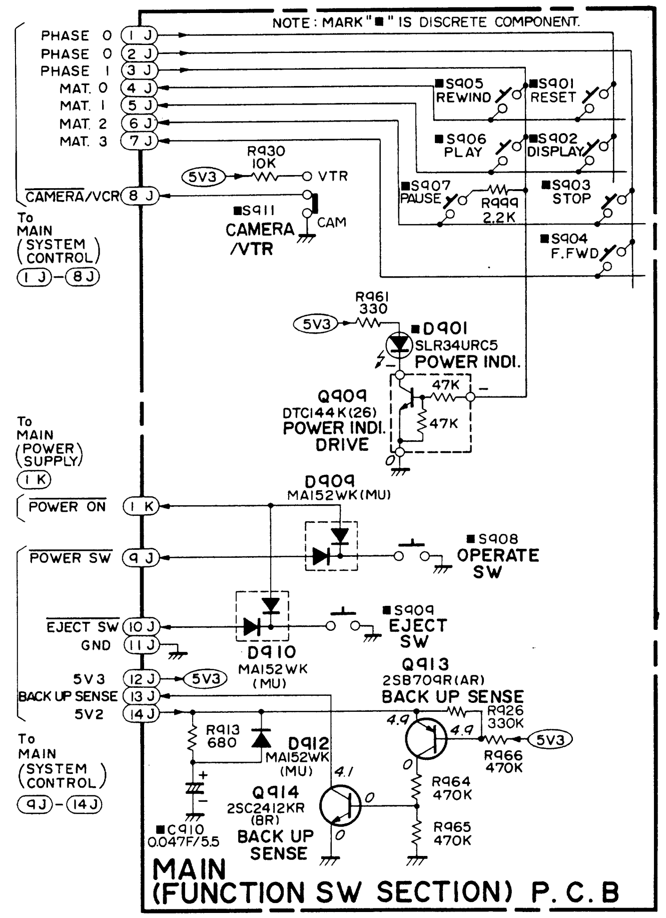
MAIN (SYSTEM CONTROL) SCHEMATIC DIAGRAM


TP990
To CHASSIS GROUND
D930 MA153(MC)
D907 MA152WK(MU)
R987 1K
R993 330K
IC901 HD6140042FH33 SYSTEM CONTROL µP
To MAIN (LUMINANCE) (8B)-(13B)
LOAD
REC
5V1
PB5V1
9V
GND
To MAIN (HEAD SW) (1C),(2C)
MONI. CUT
CURRENT UP
PG910
To INTERFACE CN412
PHASE 1
PHASE 0
MAT 4
MAT 5
5V1
LOW LIGHT
SHUT 2
SHUT 1
SHUT 0
D915 MA152WK (MU)
D990 MA152WK(MU)
C945 0.022
R992 330K
R991 330K
R990 330K
To MAIN (AUDIO) (1H)-(8H)
AUDIO(PB)
MUTE
MIC CUT
OSC ON
PB
PB
5V1
GND
R909 1K
R951 4.7K
R997 2.2K
R998 2.2K
D916 MA152WK (MU)
R923 100K
R924 100K
C909 0.1
To MAIN (FUNCTION) SW (1J)-(14J)
PHASE 0
PHASE 0
PHASE 1
MAT 0
MAT 1
MAT 2
MAT 3
CAMERA/VCR
POWER SW
EJECT SW
GND
5V3
BACK UP SENS
5V2
C973 0.1
R931 10K
R941 47K
R940 47K
PG901
To PROCESS (CONTROL) CN101
CAMERA/VCR
9V
TIME LAPSE
REC/LOW BATT
PB
REC SW
REVIEW
GND
12V
EVF VIDEO
GND
VIDEO
CHROMA
R970 1K
C971 0.1
R962 330
R971 10K
R978 47K
R973 10K
Q912 DTA124K(15) INV.
To MAIN (CHROMA) (1D),(2D)
CHROMA(REC)
MESECAM
PG903
To A/V CONNECTOR
VIDEO
MESECAM
AUDIO(PB)
EDIT
GND(AUDIO)
12V
GND
VIDEO
R980 33K
Q911 DTC144K(26) INV.
R995 10
R942 10K
R269 10K
ZD905 HZ7B-3
To MAIN (LUMINANCE) (1B)-(7B)
VIDEO
EVF VIDEO
VIDEO
V. SYNC
H. SYNC
CHARA.2
CHARA.1
ZD904 HZ7B-3 7-7.3V
C920 0.1
R969 47K
IC904 M88009P-102 CHARACTER GENERATOR
Vcc
V. SYNC
H. SYNC
D2
CHARA 2
CHARA 1
VOB
RESET
TEST
CS
CLOCK
DATA
X
EX
Vss
R967 1K
R977 10K
RT902 4.7K-B
R968 1K
C915 47P
CHARACTER POSITION
NOTE: MARK "■" IS DISCRETE COMPONENT
MIC CUT
PHASE 0
PHASE 1
REVIEW
SHUT 2
SHUT 1
SHUT 0
MAT 0
MAT 1
MAT 2
MAT 3
CAMERA/VCR
POWER SW
EJECT SW
MAT 4
MAT 5
FWD END
REW END
DEW
TAKE-UP REEL/LOCK
MUTE
ASBL
REC LED
EDIT
Vcc
CG CLOCK
END LED
CG DATA
CG RESET
LOAD
UNLOAD
REC
REC SW
SEARCH
PAUSE
REVERSE
OSC ON
MONI.CUT /LOAD
LOW LIGHT
POWER OFF
POWER ON
TIME LAPSE
BAT 1
BAT 0
BATT.
TAB
CAPST. FG
SW30Hz
GND
OSC 2
OSC 1
TEST
RESET
CASSETTE SW
M. STATE 2
M. STATE 1
M. STATE 0
CYL. ON
CAPST. 2
CAPST. 1
CAPST. 0
PB
REG CONT
D911 MA152WK (MU)
R932 2.2K
R933 10K
Q907 2SC2412KR(BR) INV.
R972 10K
R939 47K
R934 8.2K
R938 47K
Q906 2SB709R(AR) OVER DISCHARGE DET
R936 1K
ZD903 HZ7B-3 7-7.3V
RT901 2.2K-B
R937 8.2K
OVER DISCHARGE LEVEL
R935 10K
R985 10K
R986 10K
CX901 4MHz OSC
R989 470K
R914 560K
R915 10K
R916 10K
R917 10K
R918 10K
R919 47K
R920 47K
R921 47K
R922 47K
R905 10K
ZD902 RD3.6E-B2HF 3.4-3.8V
R906 10K
C903 2.2/50
R907 270
Q903 2SC2412KR(BR) RESET
R952 4.7K
R912 22K
R911 22K
Q905 2SB709R(AR) PB 5V SW
R910 1K
IC903 M54543L LOADING MOTOR DRIVE
BRAKE-UNLOAD-LOAD-STOP
SW CONTROL
GND
C911 0.022
C913 0.022
C912 0.1
To MAIN (POWER SUPPLY) (1I)-(7I)
POWER ON
POWER OFF
GND
5V2
5V3
9V
12V
To MAIN (SERVO) (1A)-(12A)
ADD. VERT
SEARCH
PAUSE
REVERSE
REC
LOAD
CAPST. FG
SW 30Hz
CYL. ON
ASSEMBLE
5V1
GND
PG907 CN907
M. STATE 2
M. STATE 1
M. STATE 0
GND
MECH. STATE SW
To MAIN (CYL./CAPST.) MOTORS DRIVE (1F)-(5F)
9V
12V
CAPST. 2
CAPST. 1
CAPST. 0
To MAIN (SWITCHING REGULATOR) (1G)-(5G)
GND
REG CONT.
5V1
12V
PB5V3
To MAIN (TROUBLE SENSOR) (1E)-(10E)
TAB
CST SW
END LED
GND
5V3
5V1
T. REEL
DEW
REW END
FWD END
PG906 CN906
UNLOAD
GND
LOAD
LOADING MOTOR
MAIN(SYSTEM CONTROL SECTION)P.C.B
A
B
C
D
E
1
2
3
4
5
6
7
8

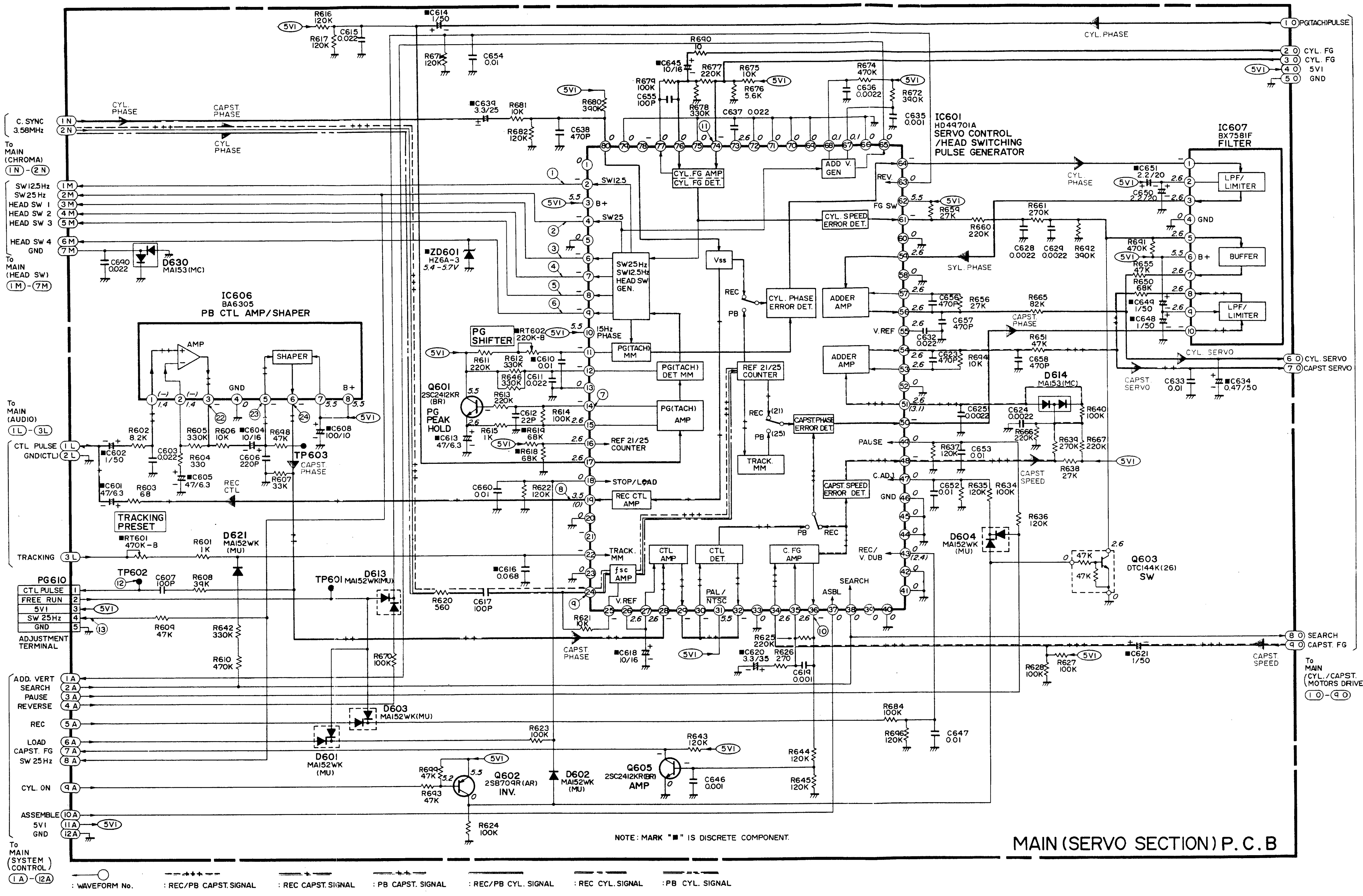
MAIN (SWITCHING REGULATOR) SCHEMATIC DIAGRAM


To PROCESS (CONTROL) CN103
PG501
IC581 HT4673 SWITCHING REGULATOR
Q586 2SC2412K(BR) DRIVER
Q583 2SB962 7V REG
ZD581 SD1D4R7J-B2 4.5-4.8V
D584 MA152WK (MU)
QF581 ICP-N5 CIRCUIT PROTECTOR 250mA
Q587 2SB709R(AR) DRIVER
Q582 2SB1181 REG
Q581 2SB962 5V1 REG
SAWTOOTH GEN
Hi:ON
DRIVER
V.REF
SAW
PB5V3
12V
B+(CAPST.)
To MAIN (CYL.-/CAPST.-MOTORS DRIVE) (1R)
5V1
REG CONT.
GND
To MAIN (SYS.CON.) (1G)-(5G)
NOTE : MARK "■" IS DISCRETE COMPONENT.
MAIN(SWITCHING REGULATOR SECTION) P.C.B

MAIN (FUNCTION SW) SCHEMATIC DIAGRAM


NOTE : MARK "■" IS DISCRETE COMPONENT.
PHASE 0
PHASE 0
PHASE 1
MAT. 0
MAT. 1
MAT. 2
MAT. 3
CAMERA/VCR
To MAIN (SYSTEM CONTROL) (1J)-(8J)
S905 REWIND
S901 RESET
S906 PLAY
S902 DISPLAY
S907 PAUSE
S903 STOP
S904 F.FWD
S911 CAMERA /VTR
D401 SLR34URC5 POWER INDI.
Q409 DTC144K(26) POWER INDI. DRIVE
To MAIN (POWER SUPPLY) (1K)
POWER ON
POWER SW
D909 MA152WK(MU)
S908 OPERATE SW
EJECT SW
D910 MA152WK (MU)
S909 EJECT SW
Q913 2SB709R(AR) BACK UP SENSE
BACK UP SENSE
5V3
5V2
D912 MA152WK (MU)
Q914 2SC2412KR (BR) BACK UP SENSE
To MAIN (SYSTEM CONTROL) (9J)-(14J)
MAIN (FUNCTION SW SECTION) P.C.B

MAIN (SERVO) SCHEMATIC DIAGRAM


C. SYNC 3.58MHz
To MAIN (CHROMA) (1N)-(2N)
SW12.5Hz
SW25Hz
HEAD SW 1
HEAD SW 2
HEAD SW 3
HEAD SW 4
To MAIN (HEAD SW) (1M)-(7M)
D630 MA153(MC)
IC606 BA6305 PB CTL AMP/SHAPER
To MAIN (AUDIO) (1L)-(3L)
CTL PULSE
TRACKING PRESET
TRACKING
PG610
ADJUSTMENT TERMINAL
TP602
TP601
TP603 CAPST PHASE
D621 MA152WK (MU)
D613 MA152WK(MU)
ADD. VERT
SEARCH
PAUSE
REVERSE
REC
LOAD
CAPST. FG
SW 25Hz
CYL. ON
ASSEMBLE
To MAIN (SYSTEM CONTROL) (1A)-(12A)
D603 MA152WK(MU)
D601 MA152WK (MU)
Q602 2SB709R(AR) INV.
D602 MA152WK (MU)
Q605 2SC2412KR(BR) AMP
ZD601 HZ6A-3 5.4-5.7V
Q601 2SC2412KR (BR) PG PEAK HOLD
PG SHIFTER
IC601 HD49701A SERVO CONTROL /HEAD SWITCHING PULSE GENERATOR
IC607 BX7581F FILTER
LPF/ LIMITER
BUFFER
Q603 DTC144K(26) SW
D614 MA153(MC)
D604 MA152WK (MU)
PG/TACH PULSE
CYL. FG
CYL. FG
5V1
GND
CYL. SERVO
CAPST SERVO
SEARCH
CAPST. FG
To MAIN (CYL./CAPST. MOTORS DRIVE) (1O)-(9O)
NOTE : MARK "■" IS DISCRETE COMPONENT.
MAIN (SERVO SECTION) P.C.B
: WAVEFORM No.
: REC/PB CAPST. SIGNAL
: REC CAPST. SIGNAL
: PB CAPST. SIGNAL
: REC/PB CYL. SIGNAL
: REC CYL. SIGNAL
: PB CYL. SIGNAL

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HEAD SW	5-30
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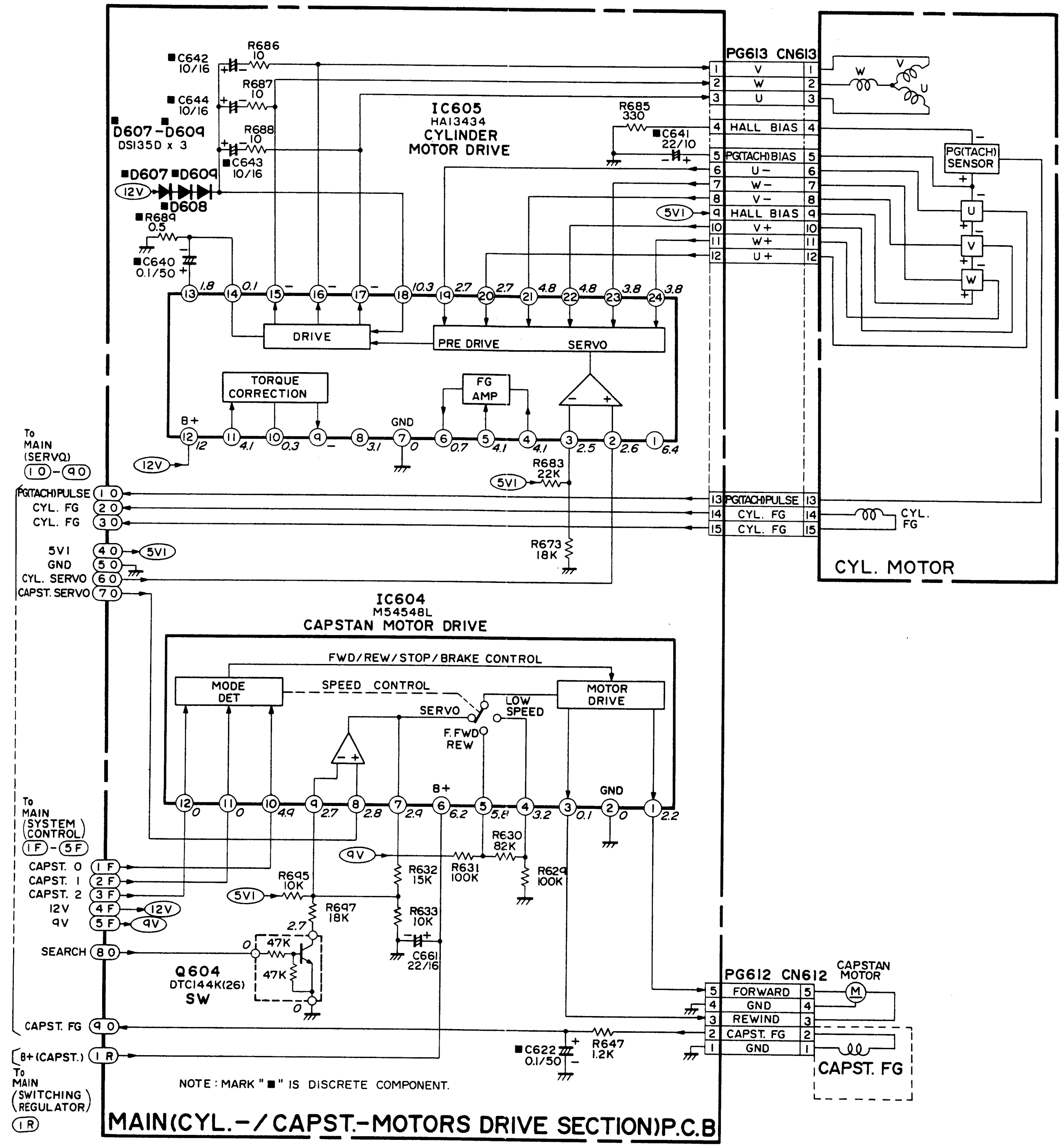
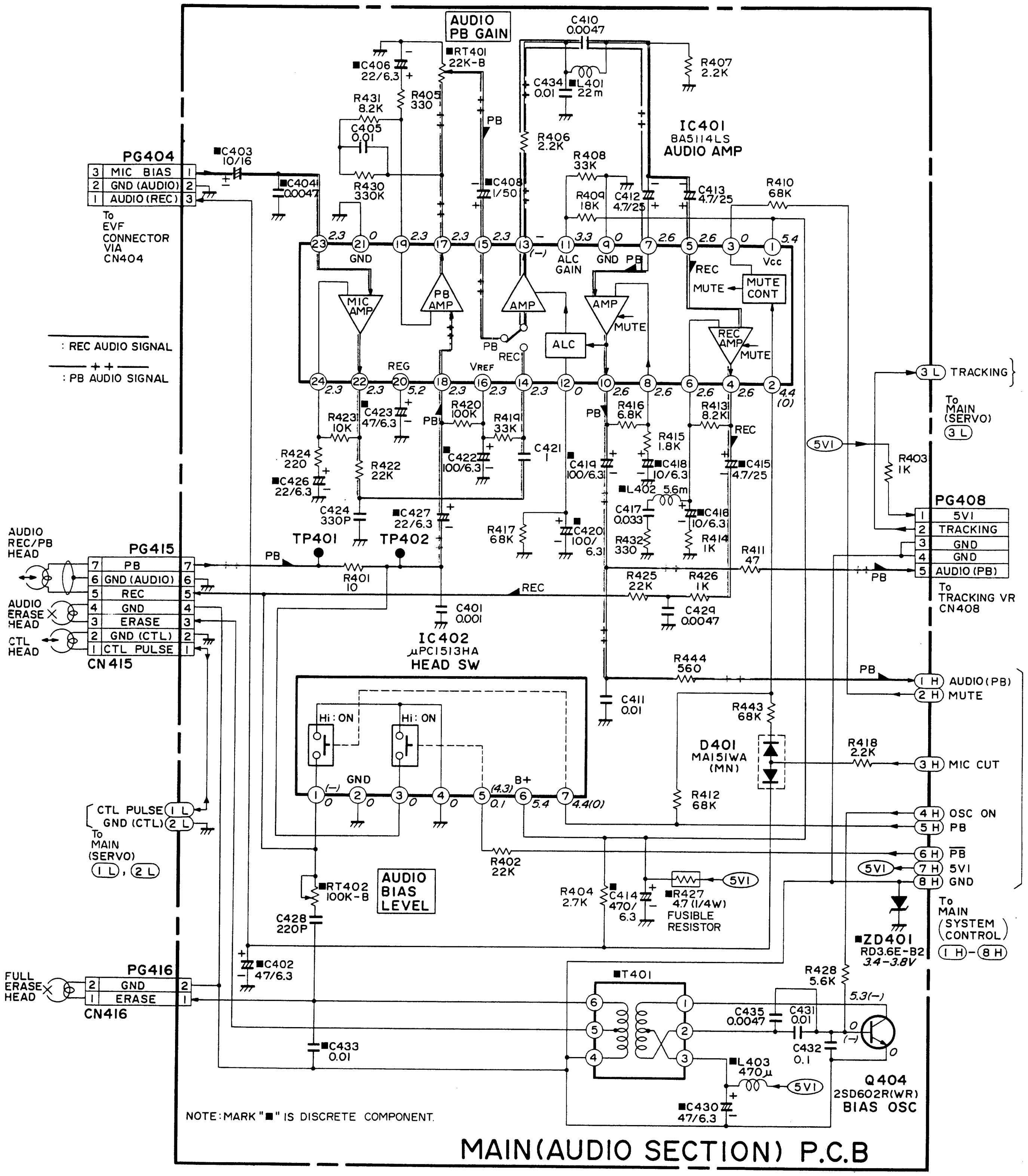
MAIN (CYL.-/CAPST.- MOTORS DRIVE) SCHEMATIC DIAGRAM



IC605
HA13434
CYLINDER
MOTOR DRIVE
DRIVE
PRE DRIVE
SERVO
TORQUE CORRECTION
FG AMP
PG613 CN613
V
W
U
HALL BIAS
PG(TACH) BIAS
U−
W−
V−
HALL BIAS
V+
W+
U+
PG(TACH) SENSOR
PG(TACH) PULSE
CYL. FG
CYL. FG
CYL. MOTOR
■C642 10/16
R686 10
R687 10
■C644 10/16
■D607-D609 DS135D x 3
R688 10
■C643 10/16
■D607 ■D609
■D608
12V
■R689 0.5
■C640 0.1/50
R685 330
■C641 22/10
5V1
R683 22K
R673 18K
To MAIN (SERVO) (1 0)-(9 0)
PG(TACH) PULSE
CYL. FG
CYL. FG
5V1
GND
CYL. SERVO
CAPST. SERVO
IC604
M54548L
CAPSTAN MOTOR DRIVE
FWD/REW/STOP/BRAKE CONTROL
MODE DET
SPEED CONTROL
MOTOR DRIVE
SERVO
LOW SPEED
F.FWD REW
B+
GND
R630 82K
R629 100K
R631 100K
R632 15K
R633 10K
C661 22/16
R695 10K
R697 18K
Q604
DTC144K(26)
SW
47K
47K
To MAIN (SYSTEM CONTROL) (1 F)-(5 F)
CAPST. 0
CAPST. 1
CAPST. 2
12V
9V
SEARCH
CAPST. FG
8+(CAPST.)
To MAIN (SWITCHING REGULATOR) (1 R)
PG612 CN612
FORWARD
GND
REWIND
CAPST. FG
GND
CAPSTAN MOTOR
CAPST. FG
■C622 0.1/50
R647 1.2K
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN (CYL.-/CAPST.-MOTORS DRIVE SECTION) P.C.B

MAIN (AUDIO) SCHEMATIC DIAGRAM



AUDIO PB GAIN
■RT401 22K-B
■C406 22/6.3
R405 330
R431 8.2K
C405 0.01
R430 330K
C410 0.0047
■C434 0.01
■L401 22m
R406 2.2K
R407 2.2K
IC401
BA5114LS
AUDIO AMP
R408 33K
R409 18K
C412 4.7/25
■C413 4.7/25
R410 68K
■C408 1/50
PG404
MIC BIAS
GND (AUDIO)
AUDIO (REC)
To EVF CONNECTOR VIA CN404
■C403 10/16
■C404 0.0047
GND
ALC GAIN
GND
PB
REC
MUTE
MUTE CONT
Vcc
MIC AMP
PB AMP
AMP
ALC
AMP
REC AMP
REG
VREF
: REC AUDIO SIGNAL
: PB AUDIO SIGNAL
R423 10K
■C423 47/6.3
R420 100K
R419 33K
R416 6.8K
R413 8.2K
R415 1.8K
R424 220
■C426 22/6.3
R422 22K
■C422 100/6.3
C421 1
■C419 100/6.3
■C418 10/6.3
■C415 4.7/25
■L402 5.6m
C417 0.033
■C416 10/6.3
C424 330P
■C427 22/6.3
R417 68K
■C420 100/6.3
R432 330
R414 1K
R411 47
To MAIN (SERVO) (3 L)
TRACKING
5V1
R403 1K
PG408
5V1
TRACKING
GND
GND
AUDIO (PB)
To TRACKING VR CN408
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CTL HEAD
PG415
PB
GND (AUDIO)
REC
GND
ERASE
GND (CTL)
CTL PULSE
CN415
TP401
TP402
R401 10
C401 0.001
R425 22K
R426 1K
C429 0.0047
IC402
μPC1513HA
HEAD SW
R444 560
AUDIO (PB)
MUTE
C411 0.01
R443 68K
D401
MA151WA (MN)
R418 2.2K
MIC CUT
R412 68K
Hi: ON
Hi: ON
GND
B+
CTL PULSE
GND (CTL)
To MAIN (SERVO) (1 L), (2 L)
OSC ON
PB
PB
5V1
GND
To MAIN (SYSTEM CONTROL) (1 H)-(8 H)
R402 22K
■RT402 100K-B
AUDIO BIAS LEVEL
C428 220P
R404 2.7K
■C414 470/6.3
■R427 4.7 (1/4W) FUSIBLE RESISTOR
■ZD401 RD3.6E-B2 3.4-3.8V
FULL ERASE HEAD
PG416
GND
ERASE
CN416
■C402 47/6.3
■T401
R428 5.6K
C435 0.0047
C431 0.01
C432 0.1
Q404
2SD602R(WR)
BIAS OSC
■L403 470μ
■C430 47/6.3
■C433 0.01
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN (AUDIO SECTION) P.C.B

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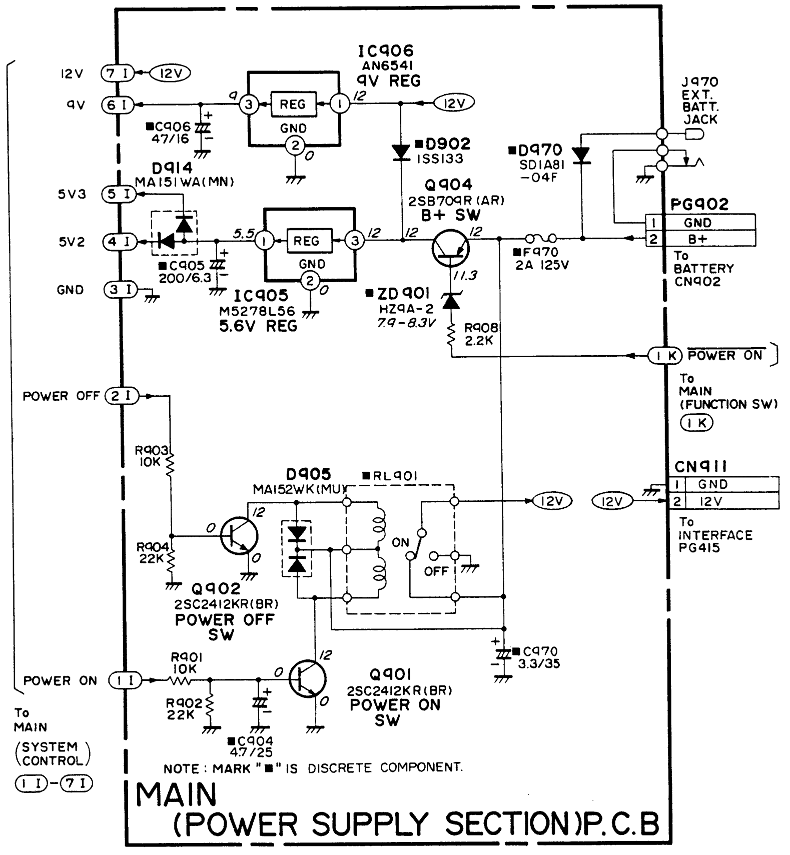
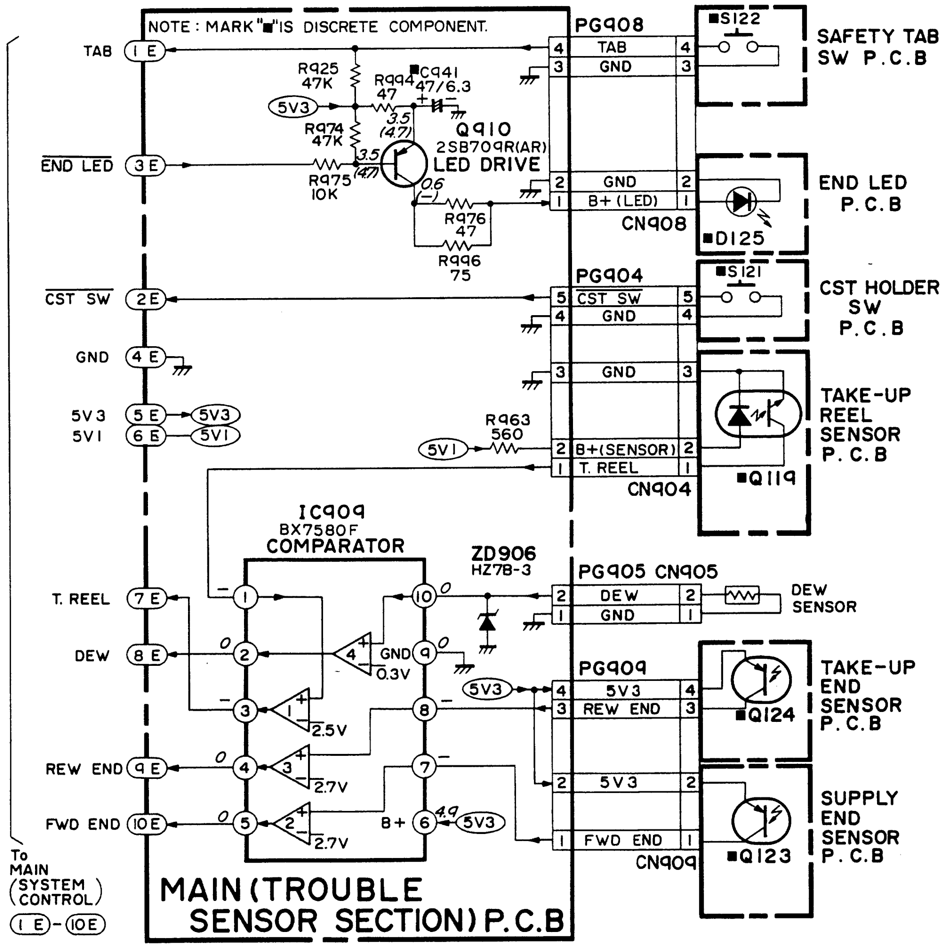
AUDIO	5-28
AUTO FOCUS	5-21
CONTROL	5-15
CHROMA	5-33
CYL.-/CAPST.-MOTORS DRIVE	5-27
ELECTRONIC VIEWFINDER	5-19
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

MAIN (POWER SUPPLY)

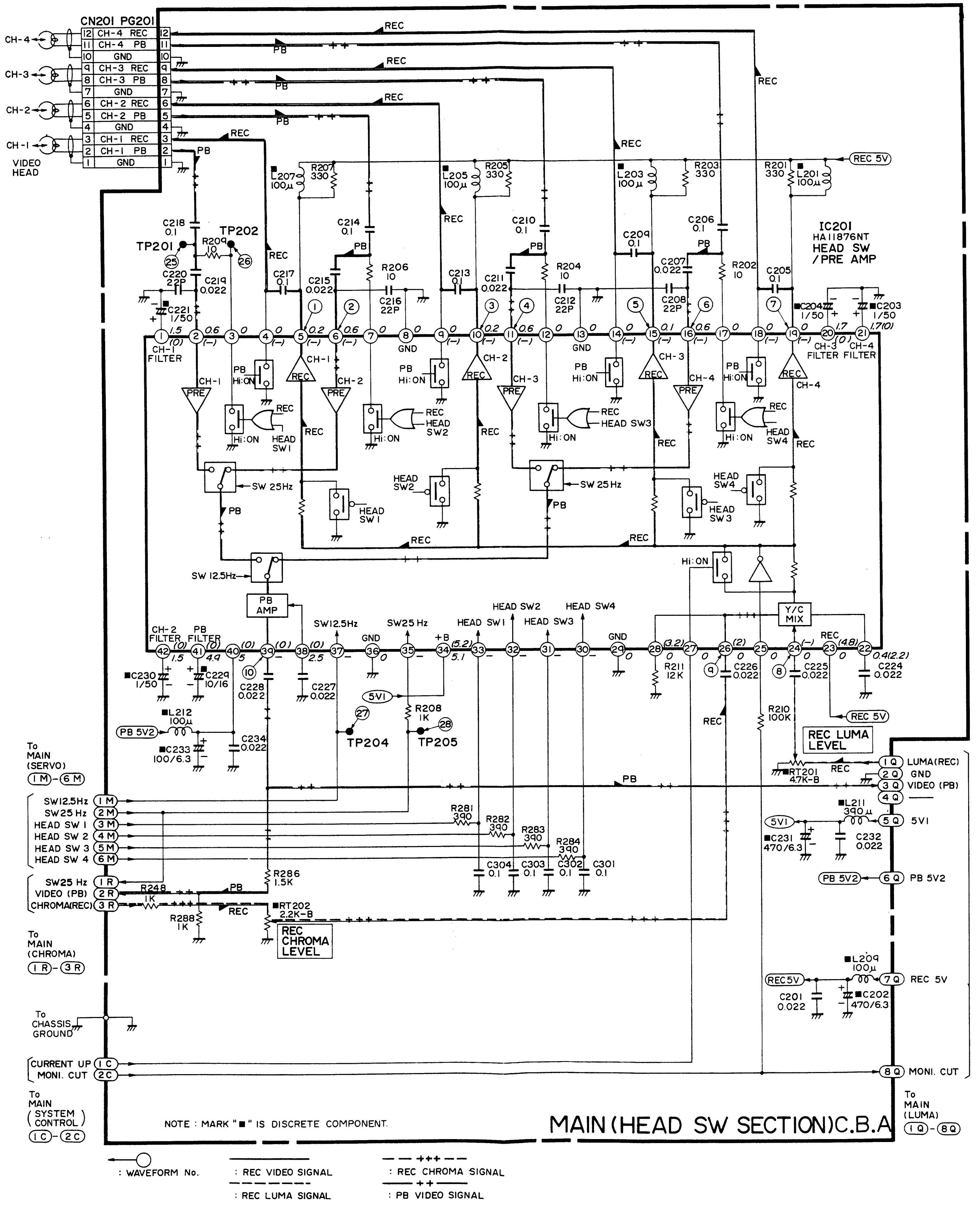

12V
9V
5V3
5V2
GND
POWER OFF
POWER ON
To MAIN (SYSTEM CONTROL) 1I-7I
IC906 AN6541 9V REG
REG
GND
■C906 47/16
D914 MA151WA(MN)
■C905 200/6.3
IC905 M5278L56 5.6V REG
■D902 1SS133
Q904 2SB709R(AR) B+ SW
■ZD901 HZ9A-2 7.9-8.3V
R908 2.2K
■D970 SD1A81-04F
■F970 2A 125V
J970 EXT. BATT. JACK
PG902
GND
B+
To BATTERY CN902
POWER ON
To MAIN (FUNCTION SW) 1K
CN911
GND
12V
To INTERFACE PG415
R903 10K
D905 MA152WK(MU)
■RL901
ON
OFF
R904 22K
Q902 2SC2412KR(BR) POWER OFF SW
R901 10K
R902 22K
■C904 47/25
Q901 2SC2412KR(BR) POWER ON SW
■C970 3.3/35
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN (POWER SUPPLY SECTION) P.C.B

SCHEMATIC DIAGRAMS	PAGE
AUDIO	5-28
AUTO FOCUS	5-21
CONTROL	5-15
CHROMA	5-33
CYL.-/CAPST.-MOTORS DRIVE	5-27
ELECTRONIC VIEWFINDER	5-19
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

MAIN (TROUBLE SENSOR) SCHEMATIC DIAGRAM


NOTE: MARK "■" IS DISCRETE COMPONENT.
TAB
END LED
CST SW
GND
5V3
5V1
T. REEL
DEW
REW END
FWD END
To MAIN (SYSTEM CONTROL) 1E-10E
R925 47K
R994 47
■C941 47/6.3
R974 47K
R975 10K
Q910 2SB709R(AR) LED DRIVE
R976 47
R996 75
R963 560
IC909 BX7580F COMPARATOR
ZD906 HZ7B-3
PG908
TAB
GND
B+ (LED)
CN908
PG904
CST SW
GND
B+ (SENSOR)
T. REEL
CN904
PG905 CN905
DEW
PG909
5V3
REW END
FWD END
CN909
■S122
SAFETY TAB SW P.C.B
■D125
END LED P.C.B
■S121
CST HOLDER SW P.C.B
■Q119
TAKE-UP REEL SENSOR P.C.B
DEW SENSOR
■Q124
TAKE-UP END SENSOR P.C.B
■Q123
SUPPLY END SENSOR P.C.B
2.5V
2.7V
0.3V
8+
MAIN (TROUBLE SENSOR SECTION) P.C.B

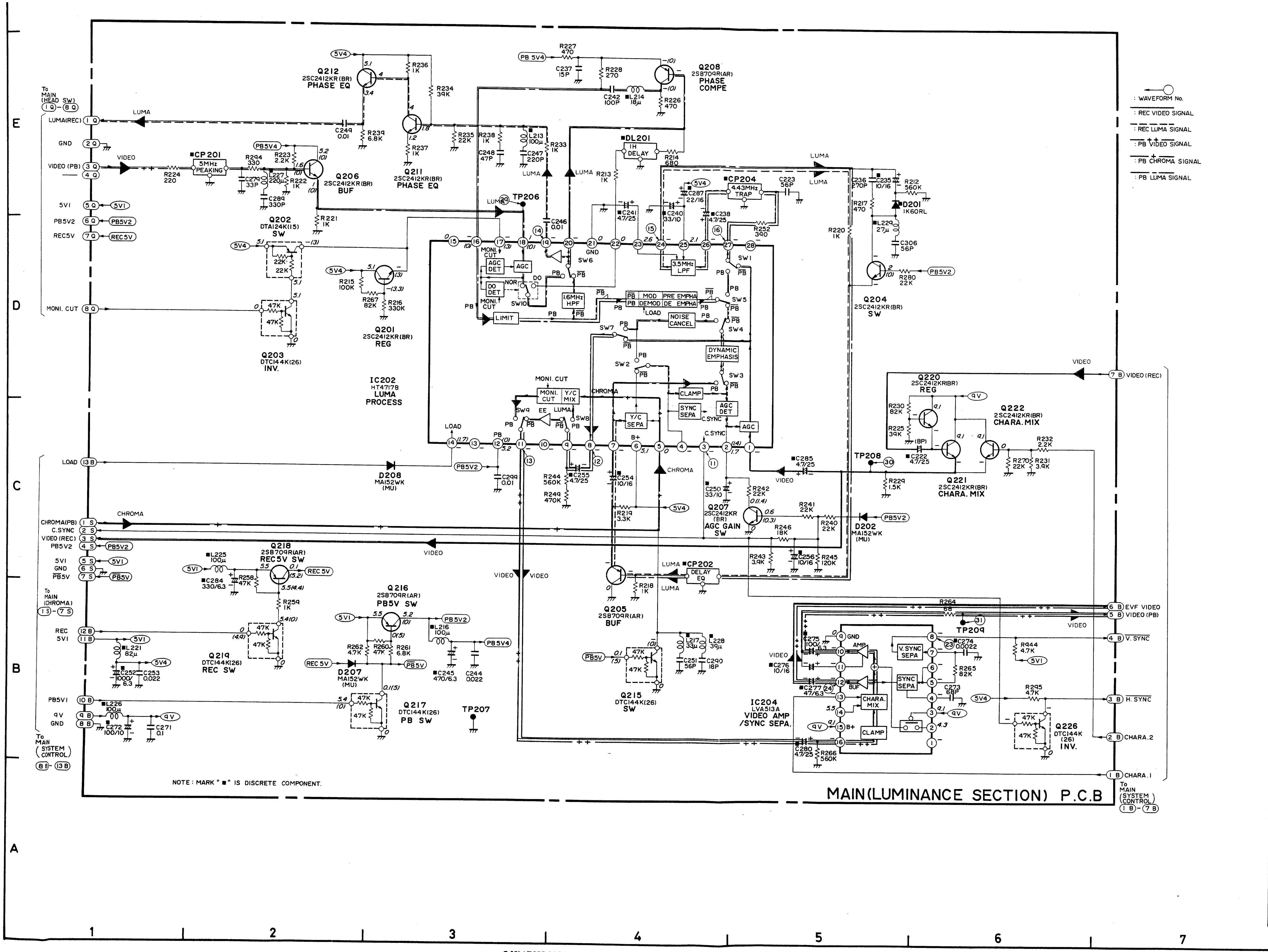
MAIN (HEAD SW) SCHEMATIC DIAGRAM


CH-4
CH-3
CH-2
CH-1
VIDEO HEAD
CN201 PG201
CH-4 REC
CH-4 PB
GND
CH-3 REC
CH-3 PB
CH-2 REC
CH-2 PB
CH-1 REC
CH-1 PB
REC
PB
REC 5V
■L207 100μ
R207 330
■L205 100μ
R205 330
■L203 100μ
R203 330
R201 330
■L201 100μ
IC201 HA11876NT HEAD SW /PRE AMP
TP201
TP202
R209 10
C218 0.1
C220 22P
C219 0.022
C221 1/50
C217 0.1
C215 0.022
C214 0.1
R206 10
C216 22P
C213 0.1
C211 0.022
C210 0.1
R204 10
C212 22P
C209 0.1
C207 0.022
C208 22P
C206 0.1
R202 10
C205 0.1
■C204 1/50
■C203 1/50
CH-1 FILTER
CH-3 FILTER
CH-4 FILTER
PRE
Hi:ON
HEAD SW1
HEAD SW2
HEAD SW3
HEAD SW4
SW 25Hz
SW 12.5Hz
PB AMP
Y/C MIX
CH-2 FILTER
PB FILTER
SW12.5Hz
SW25 Hz
+B
■C230 1/50
■C229 10/16
C228 0.022
C227 0.022
R211 12K
C226 0.022
C225 0.022
C224 0.022
5V1
R208 1K
TP204
TP205
■L212 100μ
PB 5V2
■C233 100/6.3
C234 0.022
R210 100K
REC LUMA LEVEL
■RT201 47K-B
To MAIN (SERVO) 1M-6M
SW12.5Hz
SW25 Hz
HEAD SW 1
HEAD SW 2
HEAD SW 3
HEAD SW 4
R281 390
R282 390
R283 390
R284 390
C304 0.1
C303 0.1
C302 0.1
C301 0.1
SW25 Hz
VIDEO (PB)
CHROMA(REC)
R248 1K
R288 1K
R286 1.5K
■RT202 2.2K-B
REC CHROMA LEVEL
To MAIN (CHROMA) 1R-3R
To CHASSIS GROUND
CURRENT UP
MONI. CUT
To MAIN (SYSTEM CONTROL) 1C-2C
LUMA(REC)
GND
VIDEO (PB)
5V1
■L211 390μ
■C231 470/6.3
C232 0.022
PB 5V2
■L209 100μ
REC 5V
C201 0.022
■C202 470/6.3
MONI. CUT
To MAIN (LUMA) 1Q-8Q
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN (HEAD SW SECTION) C.B.A
: WAVEFORM No.
: REC VIDEO SIGNAL
: REC LUMA SIGNAL
: REC CHROMA SIGNAL
: PB VIDEO SIGNAL

E D C B A

1 2 3 4 5 6 7 8

MAIN (LUMINANCE) SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
: WAVEFORM No.
: REC VIDEO SIGNAL
: REC LUMA SIGNAL
: PB VIDEO SIGNAL
: PB CHROMA SIGNAL
: PB LUMA SIGNAL
To MAIN (HEAD SW) (1Q)-(8Q)
LUMA(REC)
GND
VIDEO (PB)
5V1
PB5V2
REC5V
MONI. CUT
LOAD
CHROMA(PB)
C.SYNC
VIDEO (REC)
PB5V2
5V1
GND
PB5V
To MAIN (CHROMA) (1S)-(7S)
REC
5V1
PB5V1
9V
GND
To MAIN (SYSTEM CONTROL) (8B)-(13B)
Q212 2SC2412KR(BR) PHASE EQ
Q211 2SC2412KR(BR) PHASE EQ
Q208 2SB709R(AR) PHASE COMPE
CP201 5MHz PEAKING
Q206 2SC2412KR(BR) BUF
Q202 DTA124K(15) SW
Q201 2SC2412KR(BR) REG
Q203 DTC144K(26) INV.
IC202 HT4717B LUMA PROCESS
DL201 1H DELAY
CP204 4.43MHz TRAP
3.5MHz LPF
TP206
AGC DET
AGC
DO DET
MONI. CUT
LIMIT
1.6MHz HPF
PB MOD PRE EMPHA
PB DEMOD DE EMPHA
NOISE CANCEL
DYNAMIC EMPHASIS
CLAMP
SYNC SEPA
AGC DET
AGC
Y/C SEPA
MONI. CUT Y/C MIX
SW1 SW2 SW3 SW4 SW5 SW6 SW7 SW8 SW9 SW10
D201 1K60RL
Q204 2SC2412KR(BR) SW
Q220 2SC2412KR(BR) REG
Q222 2SC2412KR(BR) CHARA. MIX
Q221 2SC2412KR(BR) CHARA. MIX
TP208
D208 MA152WK (MU)
Q207 2SC2412KR (BR) AGC GAIN SW
D202 MA152WK (MU)
CP202 DELAY EQ
Q205 2SB709R(AR) BUF
Q218 2SB709R(AR) REC5V SW
Q219 DTC144K(26) REC SW
Q216 2SB709R(AR) PB5V SW
D207 MA152WK (MU)
Q217 DTC144K(26) PB SW
TP207
Q215 DTC144K(26) SW
IC204 LVA513A VIDEO AMP /SYNC SEPA.
CHARA. MIX
CLAMP
V.SYNC SEPA
SYNC SEPA
TP209
Q226 DTC144K (26) INV.
VIDEO (REC)
EVF VIDEO
VIDEO (PB)
V. SYNC
H. SYNC
CHARA.2
CHARA. 1
To MAIN (SYSTEM CONTROL) (1B)-(7B)
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN(LUMINANCE SECTION) P.C.B

SCHEMATIC DIAGRAMS	PAGE
AUDIO	5-28
AUTO FOCUS	5-21
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CHROMA	5-33
CYL.-/CAPST.-MOTORS DRIVE	5-27
ELECTRONIC VIEWFINDER	5-19
FUNCTION SW	5-25
FOCUS SENSOR	5-20
HEAD SW	5-30
INTERFACE	5-10
LUMINANCE	5-31
MIC JACK	5-22
PRE PROCESS	5-11
POWER SUPPLY	5-29
SENSOR	5-7
SERVO	5-25
SYSTEM CONTROL	5-23
SWITCHING REGULATOR	5-25
TROUBLE SENSOR	5-29
TRACKING VR	5-34
VIDEO PROCESS	5-13

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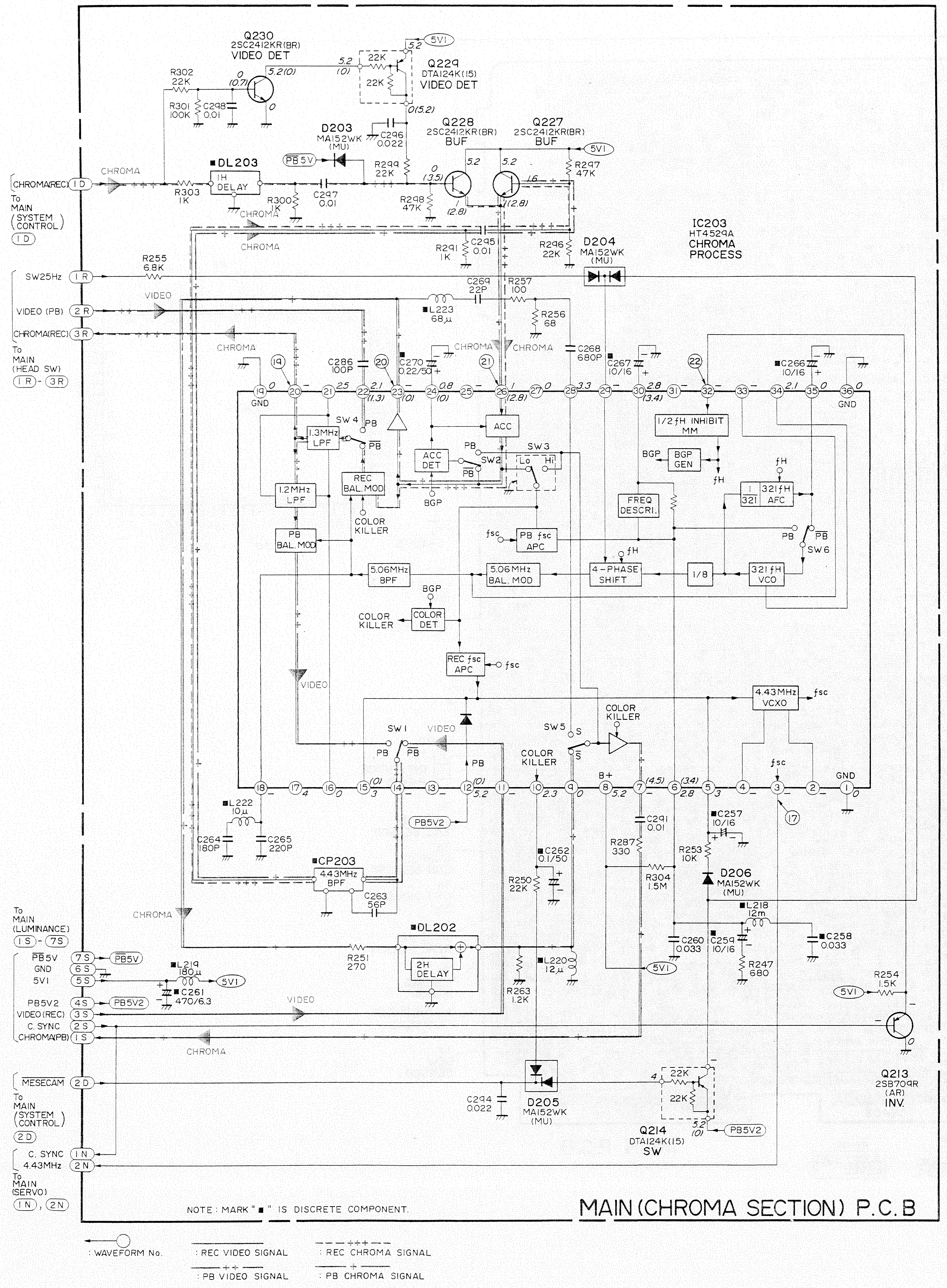
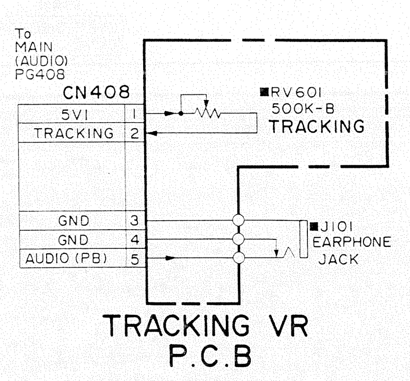
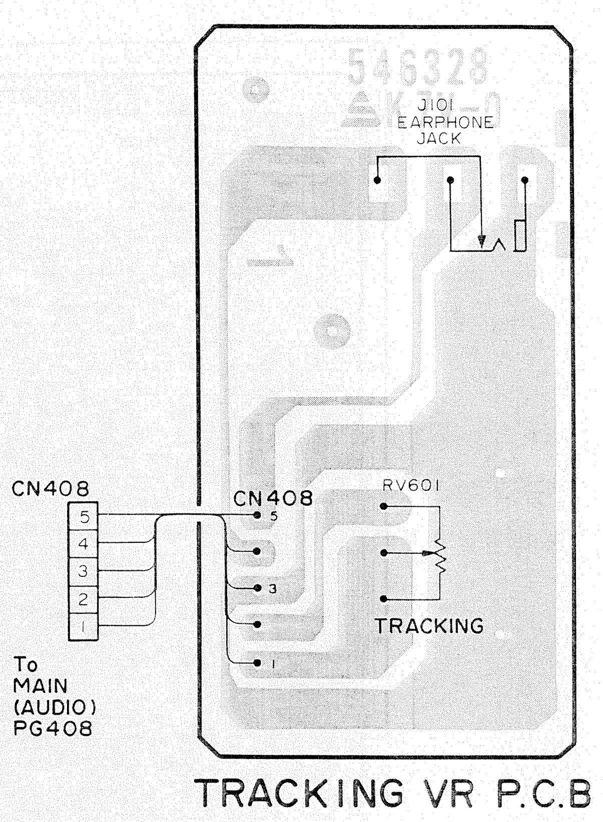
MAIN (CHROMA) SCHEMATIC DIAGRAM


Q230
2SC2412KR(BR)
VIDEO DET
Q229
DTA124K(15)
VIDEO DET
Q228
2SC2412KR(BR)
BUF
Q227
2SC2412KR(BR)
BUF
D203
MA152WK
(MU)
■DL203
1H DELAY
D204
MA152WK
(MU)
IC203
HT4529A
CHROMA
PROCESS
CHROMA(REC) 1D
To MAIN (SYSTEM CONTROL) 1D
SW25Hz 1R
VIDEO (PB) 2R
CHROMA(REC) 3R
To MAIN (HEAD SW) 1R - 3R
1.3MHz LPF
1.2MHz LPF
PB BAL. MOD
REC BAL. MOD
ACC DET
ACC
COLOR KILLER
1/2fH INHIBIT MM
BGP GEN
FREQ DESCRI.
321fH AFC
PB fsc APC
5.06MHz BPF
5.06MHz BAL. MOD
4-PHASE SHIFT
1/8
321fH VCO
COLOR DET
REC fsc APC
4.43MHz VCXO
SW1
SW3
SW4
SW5
SW6
■CP203
4.43MHz BPF
■DL202
2H DELAY
D205
MA152WK
(MU)
D206
MA152WK
(MU)
Q214
DTA124K(15)
SW
Q213
2SB709R
(AR)
INV.
To MAIN (LUMINANCE) 1S - 7S
PB5V 7S
GND 6S
5V1 5S
PB5V2 4S
VIDEO(REC) 3S
C. SYNC 2S
CHROMA(PB) 1S
MESECAM 2D
To MAIN (SYSTEM CONTROL) 2D
C. SYNC 1N
4.43MHz 2N
To MAIN (SERVO) 1N, 2N
NOTE: MARK "■" IS DISCRETE COMPONENT.
MAIN (CHROMA SECTION) P.C.B
: WAVEFORM No.
: REC VIDEO SIGNAL
: PB VIDEO SIGNAL
: REC CHROMA SIGNAL
: PB CHROMA SIGNAL

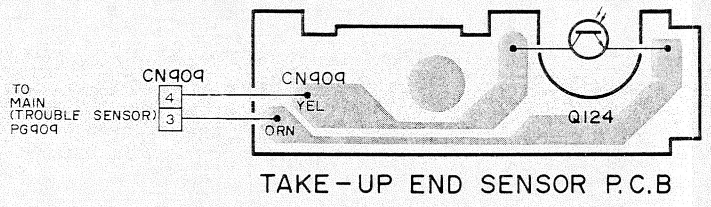
TRACKING VR SCHEMATIC DIAGRAM


To MAIN (AUDIO) PG408
CN408
5V1 1
TRACKING 2
GND 3
GND 4
AUDIO (PB) 5
■RV601
500K-B
TRACKING
■J101
EARPHONE
JACK
TRACKING VR
P.C.B

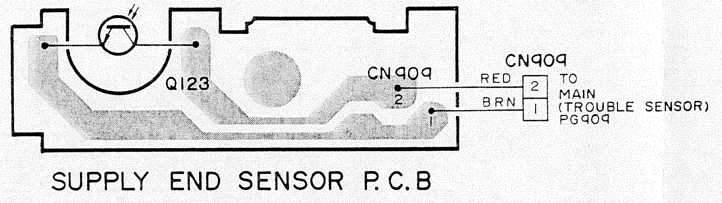
TRACKING VR CIRCUIT BOARD


546328
J101
EARPHONE
JACK
CN408
RV601
TRACKING
To MAIN (AUDIO) PG408
TRACKING VR P.C.B

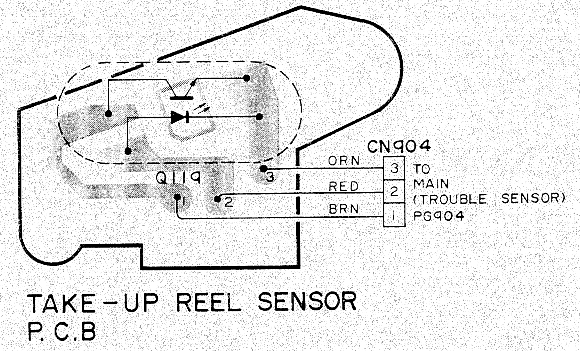
TAKE-UP END SENSOR CIRCUIT BOARD


To MAIN (TROUBLE SENSOR) PG909
CN909
YEL
ORN
Q124
TAKE-UP END SENSOR P.C.B

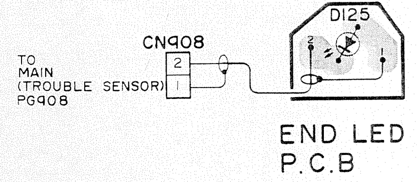
SUPPLY END SENSOR CIRCUIT BOARD


Q123
CN909
RED
BRN
To MAIN (TROUBLE SENSOR) PG909
SUPPLY END SENSOR P.C.B

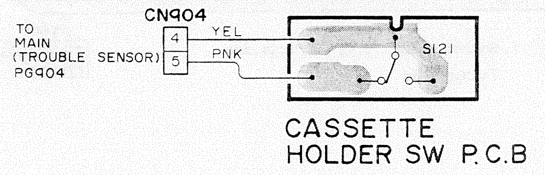
TAKE-UP REEL SENSOR CIRCUIT BOARD


Q119
CN904
ORN
RED
BRN
To MAIN (TROUBLE SENSOR) PG904
TAKE-UP REEL SENSOR P.C.B

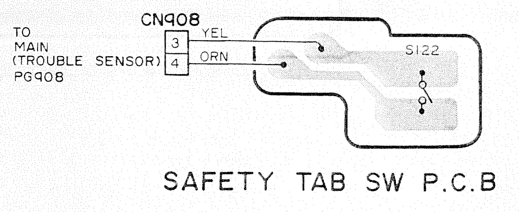
END LED CIRCUIT BOARD


To MAIN (TROUBLE SENSOR) PG908
CN908
D125
END LED P.C.B

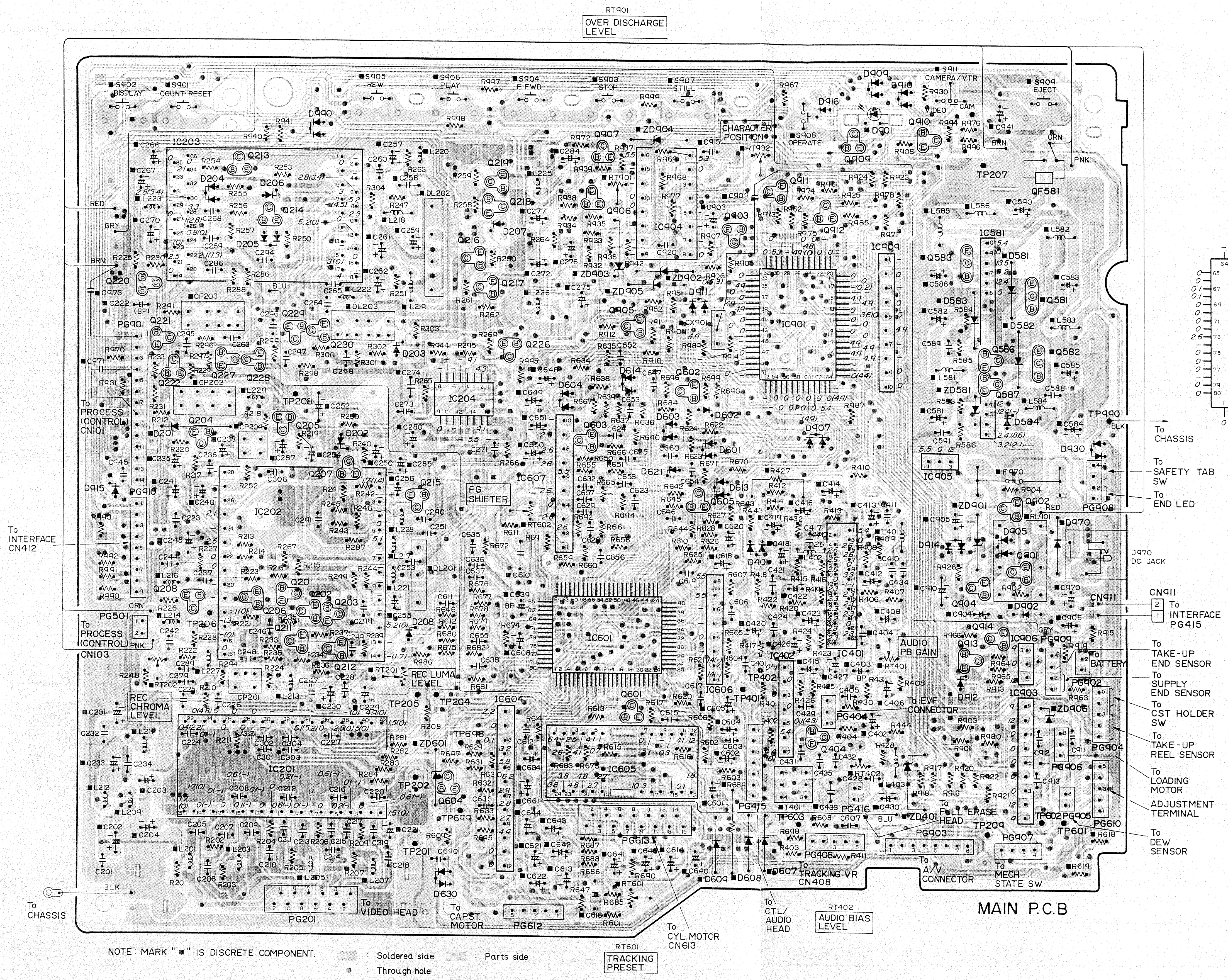
CST. HOLDER SW CIRCUIT BOARD

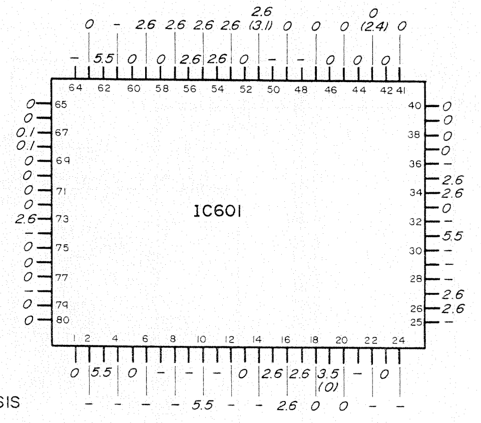

To MAIN (TROUBLE SENSOR) PG904
CN904
YEL
PNK
S121
CASSETTE HOLDER SW P.C.B

SAFETY TAB SW CIRCUIT BOARD


To MAIN (TROUBLE SENSOR) PG908
CN908
YEL
ORN
S122
SAFETY TAB SW P.C.B

MAIN CIRCUIT BOARD


RT901
OVER DISCHARGE LEVEL
S902 DISPLAY
S901 COUNT RESET
S905 REW
S906 PLAY
S904 F.FWD
S903 STOP
S907 STILL
S911 CAMERA/VTR
S909 EJECT
S908 OPERATE
CHARACTER POSITION
IC203
IC204
IC202
IC201
IC904
IC901
IC909
IC581
IC601
IC607
IC604
IC605
IC606
IC402
IC401
IC905
IC906
IC903
PG SHIFTER
REC LUMA LEVEL
REC CHROMA LEVEL
AUDIO PB GAIN
To PROCESS (CONTROL) CN101
To PROCESS (CONTROL) CN103
To INTERFACE CN412
PG901
PG910
PG501
PG201
PG612
PG613
PG415
PG416
PG408
PG903
PG907
PG908
PG909
PG902
PG904
PG906
PG905
PG610
PG404
QF581
TP207
TP990
To CHASSIS
To SAFETY TAB SW
To END LED
J970 DC JACK
CN911
To INTERFACE PG415
To BATTERY
To TAKE-UP END SENSOR
To SUPPLY END SENSOR
To CST HOLDER SW
To TAKE-UP REEL SENSOR
To LOADING MOTOR
ADJUSTMENT TERMINAL
To DEW SENSOR
To EVF CONNECTOR
To FULL ERASE HEAD
To A/V CONNECTOR
To MECH STATE SW
TRACKING VR CN408
To CTL/AUDIO HEAD
RT402
AUDIO BIAS LEVEL
To CYL.MOTOR CN613
RT601
TRACKING PRESET
To CAPST MOTOR
To VIDEO HEAD
To CHASSIS
BLK
RED
GRY
BRN
BLU
ORN
PNK
MAIN P.C.B



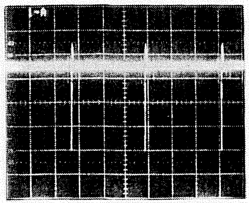
NOTE : MARK "■" IS DISCRETE COMPONENT.

▨ : Soldered side
▨ : Parts side
● : Through hole

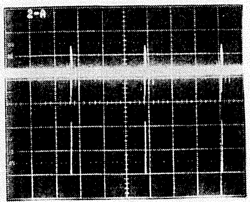
WAVEFORMS

SENSOR

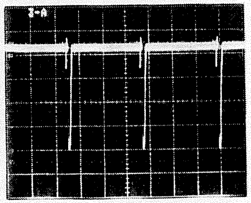
1-A IC002-9 870mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



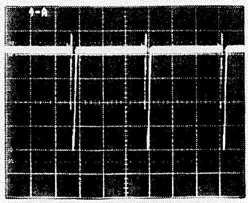
2-A IC002-10 1.1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



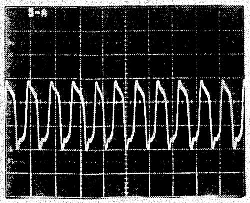
3-A IC003-9 860mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



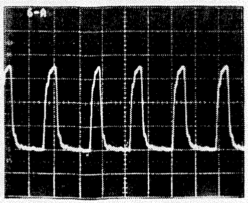
4-A IC003-10 860mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



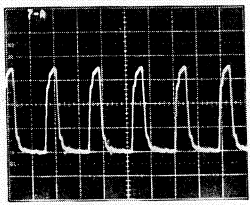
5-A IC005-5 5.8Vp-p
2V/100nsec.cm
COLOR CHART



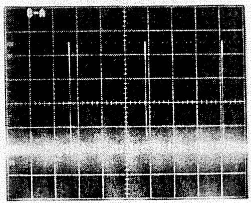
6-A IC005-16 3.5Vp-p
1V/100nsec.cm
COLOR CHART



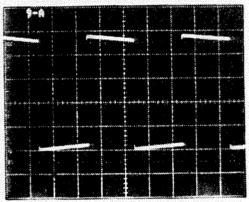
7-A IC005-17 3.5Vp-p
1V/100nsec.cm
COLOR CHART



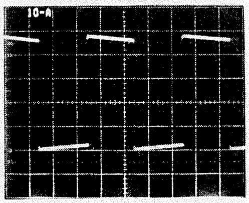
8-A IC005-19 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



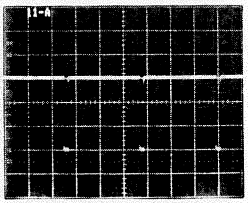
9-A IC005-20 4.8Vp-p
1V/10.0msec.cm
COLOR CHART



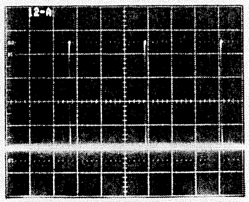
10-A IC005-21 4.8Vp-p
1V/10.0msec.cm
COLOR CHART



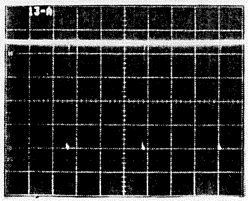
11-A IC005-22 3.0Vp-p
1V/20.0μ sec.cm
COLOR CHART



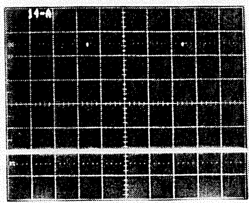
12-A IC005-23 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



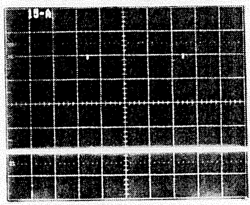
13-A IC005-24 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



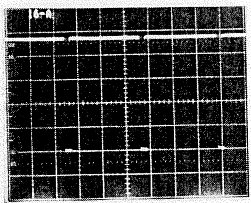
14-A IC005-25 4.5Vp-p
1V/5.0msec.cm
COLOR CHART



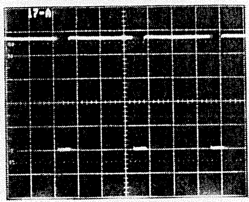
15-A . IC005-33 4.0Vp-p
1V/5.0msec.cm
COLOR CHART



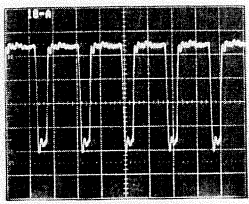
16-A IC005-35 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



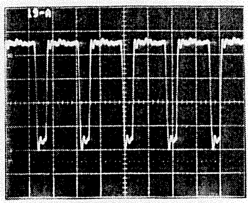
17-A IC005-36 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



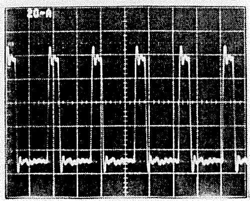
18-A IC005-39 4.5Vp-p
1V/100nsec.cm
COLOR CHART



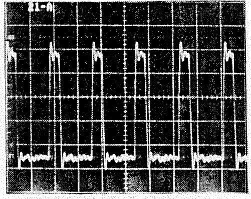
19-A IC005-40 4.6Vp-p
1V/100nsec.cm
COLOR CHART



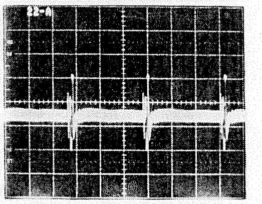
20-A IC005-41 5.4Vp-p
1V/100nsec.cm
COLOR CHART



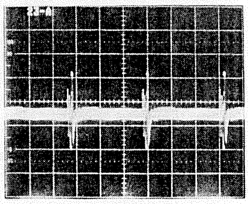
21-A IC005-42 5.3Vp-p
1V/100nsec.cm
COLOR CHART



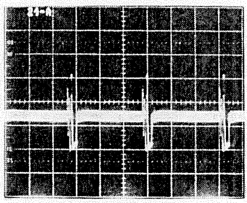
22-A IC006-4 3.1Vp-p
1V/20.0μ sec.cm
COLOR CHART



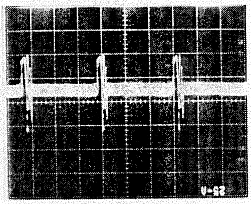
23-A IC006-5 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



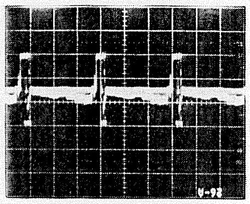
24-A IC006-12 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



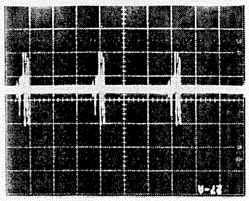
25-A IC006-13 3.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



26-A IC007-13 1.5Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

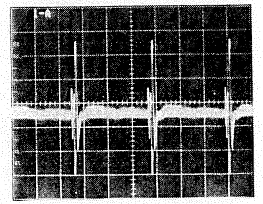


27-A IC007-15 1.5Vp-p
0.5V/20.0μ sec.cm
COLOR CHART

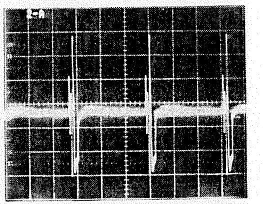


PROCESS

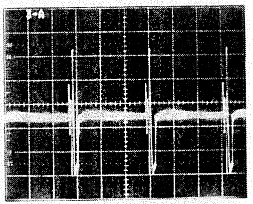
1-A IC101-4 1.1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



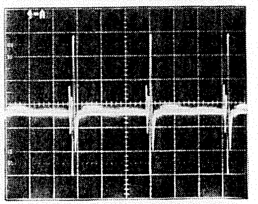
2-A IC101-5 2.9Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



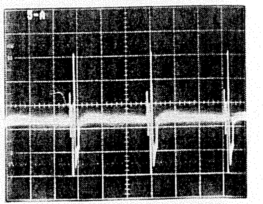
3-A IC101-6 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



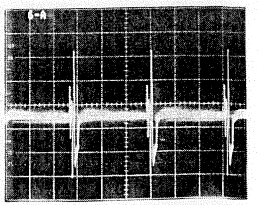
4-A IC101-7 2.9Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



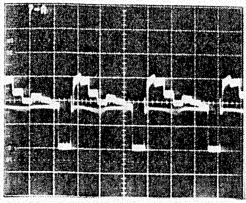
5-A IC101-9 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



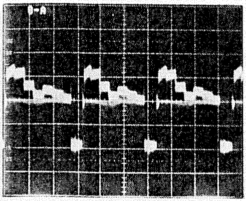
6-A IC101-10 2.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



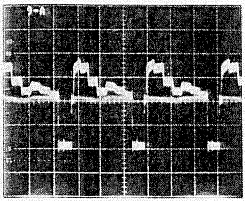
7-A IC103-9 600mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



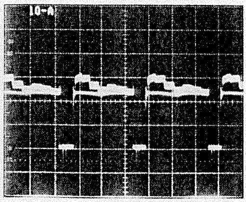
8-A IC103-11 340mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



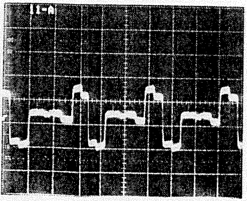
9-A IC103-15 360mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



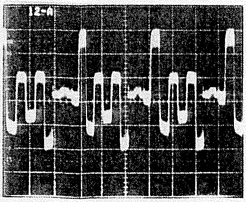
10-A IC103-24 1.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



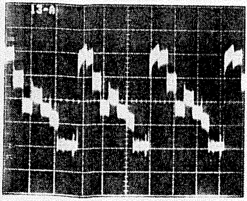
11-A IC104-2 520mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



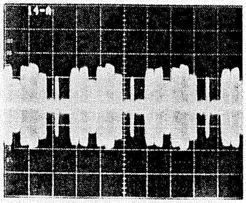
12-A IC104-3 1.0Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



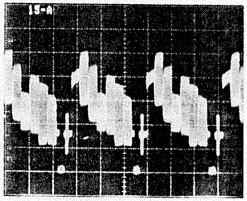
13-A IC105-13 430mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



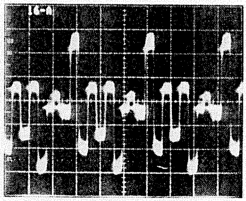
14-A IC105-19 350mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



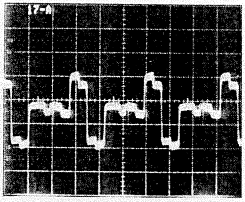
15-A IC105-25 1Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



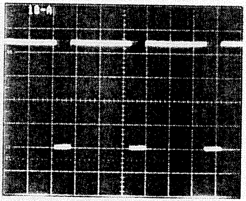
16-A IC106-15 580mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



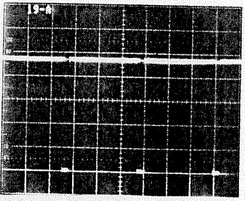
17-A IC106-16 610mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



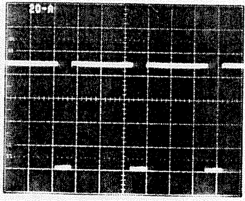
18-A IC107-5 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



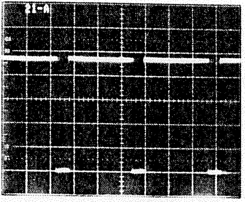
19-A IC107-7 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



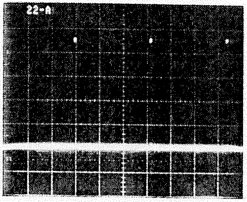
20-A IC107-8 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



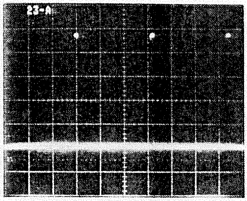
21-A IC107-9 4.7Vp-p
1V/20.0μ sec.cm
COLOR CHART



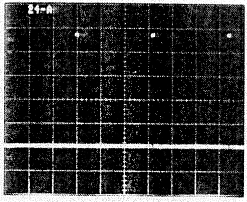
22-A IC107-10 4.6Vp-p
1V/20.0μ sec.cm
COLOR CHART



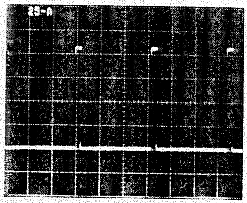
23-A IC107-11 4.8Vp-p
1V/20.0μ sec.cm
COLOR CHART



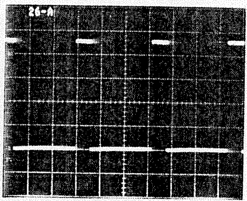
24-A IC107-12 4.8Vp-p
1V/20.0μ sec.cm
COLOR CHART



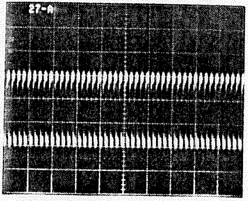
25-A IC107-16 4.2Vp-p
1V/20.0μ sec.cm
COLOR CHART



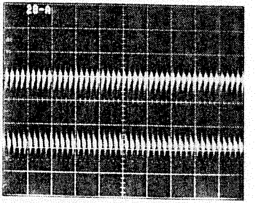
26-A IC107-17 4.5Vp-p
1V/20.0μ sec.cm
COLOR CHART



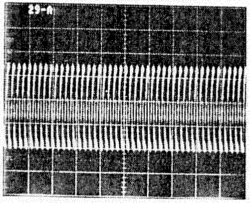
27-A IC107-22 150mVp-p
50mV/1.0μ sec.cm
COLOR CHART



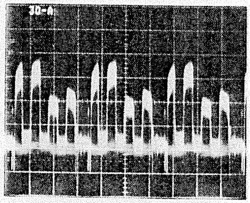
28-A IC107-23 150mVp-p
50mV/1.0μ sec.cm
COLOR CHART



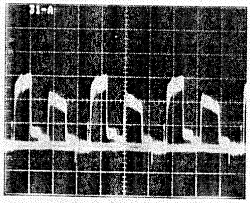
29-A TP102 350mVp-p
0.1V/1.0μ sec.cm
COLOR CHART



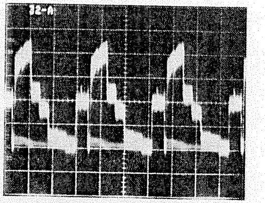
30-A PG106-3 230mVp-p
50mV/20.0μ sec.cm
COLOR CHART



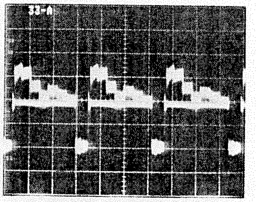
31-A PG106-4 300mVp-p
0.1V/20.0μ sec.cm
COLOR CHART



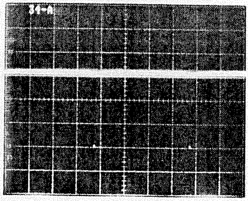
32-A PG106-5 220mVp-p
50mV/20.0μ sec.cm
COLOR CHART



33-A PG106-6 340mVp-p
0.1V/20.0μ sec.cm
COLOR CHART

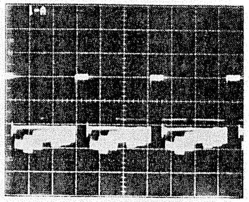


34-A PG106-7 3.2Vp-p
1V/5.0msec.cm
COLOR CHART

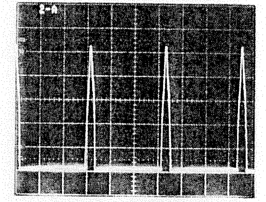


ELECTRONIC VIEWFINDER (EVF)

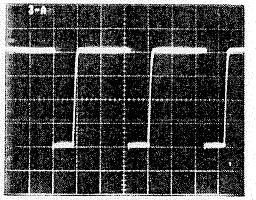
1-A IC801-10 1.6Vp-p
0.5V/20.0μ sec.cm
COLOR CHART



2-A T801-3 100Vp-p
20V/20.0μ sec.cm
COLOR CHART

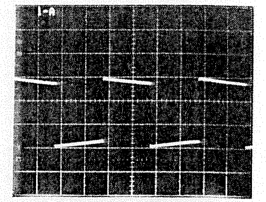


3-A TP801 8.2Vp-p
2V/20.0μ sec.cm
COLOR CHART

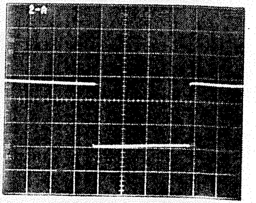


SERVO

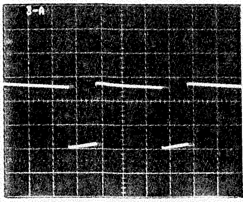
1-A IC601-2 6.0Vp-p
2V/20.0msec.cm
REC/PLAY



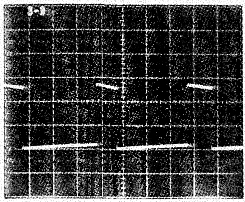
2-A IC601-4 5.6Vp-p
2V/5.0msec.cm
REC/PLAY



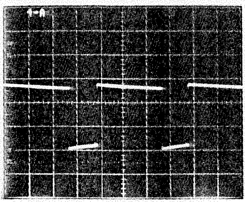
3-A IC601-6 5.6Vp-p
2V/20.0msec.cm
REC



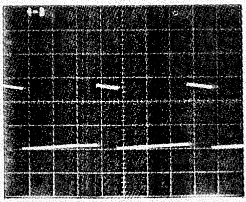
3-B IC601-6 5.6Vp-p
2V/20.0msec.cm
PLAY



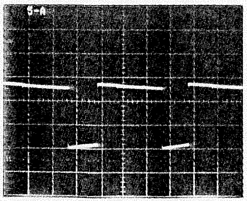
4-A IC601-7 5.6Vp-p
2V/20.0msec.cm
REC



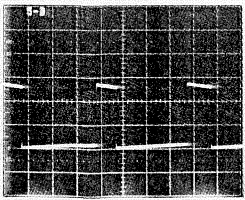
4-B IC601-7 5.6Vp-p
2V/20.0msec.cm
PLAY



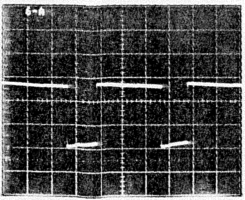
5-A IC601-8 5.6Vp-p
2V/20.0msec.cm
REC



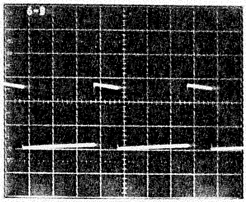
5-B IC601-8 5.6Vp-p
2V/20.0msec.cm
PLAY



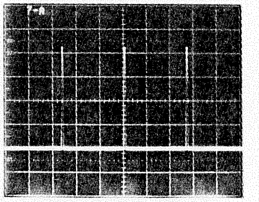
6-A IC601-9 5.6Vp-p
2V/20.0msec.cm
REC



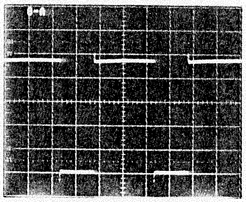
6-B IC601-9 5.6Vp-p
2V/20.0msec.cm
PLAY



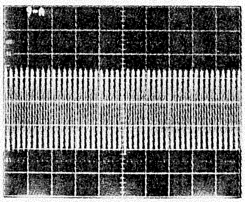
7-A IC601-14 4.3Vp-p
1V/10.0msec.cm
REC/PLAY



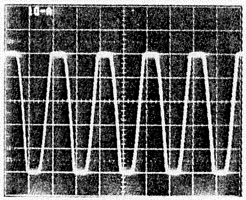
8-A IC601-19 4.8Vp-p
1V/10.0msec.cm
REC



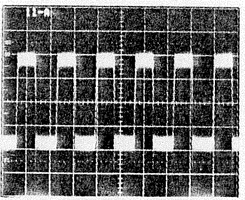
9-A IC601-24 320mVp-p
0.1V/1.0μ sec.cm
REC/PLAY



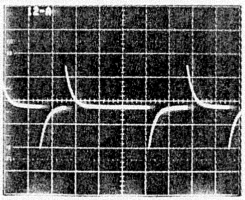
10-A IC601-36 5.0Vp-p
1V/1.0msec.cm
REC/PLAY



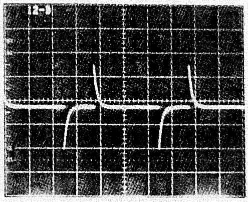
11-A IC601-74 200mVp-p
50mV/1.0msec.cm
REC/PLAY



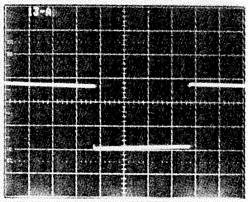
12-A TP602 7.0Vp-p
2V/5.0msec.cm
REC



12-B TP602 7.0Vp-p
2V/10.0msec.cm
PLAY

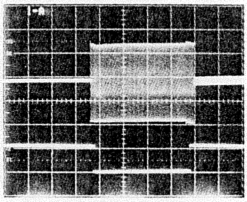


13-A PG601-4 5.6Vp-p
2V/5.0msec.cm
REC/PLAY

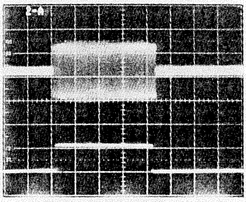


LUMINANCE /CHROMA

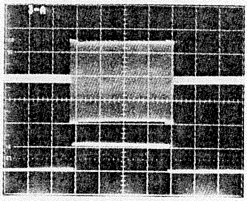
1-A IC201-5 3.5Vp-p
1V/5.0msec.cm
REC



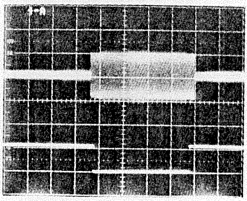
2-A IC201-6 250mVp-p
0.1V/5.0msec.cm
REC



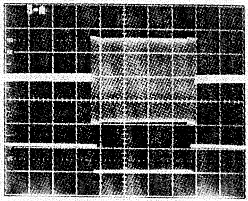
3-A IC201-10 3.6Vp-p
1V/5.0msec.cm
REC



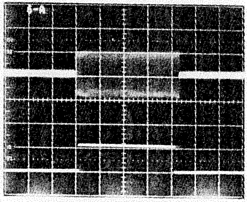
4-A IC201-11 200mVp-p
0.1V/5.0msec.cm
REC



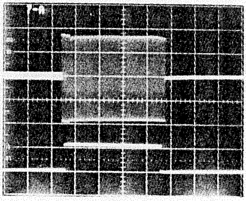
5-A IC201-15 3.7Vp-p
1V/5.0msec.cm
REC



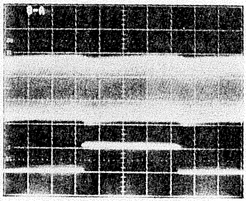
6-A IC201-16 200mVp-p
0.1V/5.0msec.cm
REC



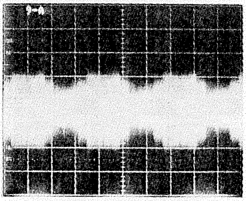
7-A IC201-19 3.8Vp-p
1V/5.0msec.cm
REC



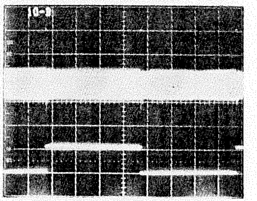
8-A IC201-24 150mVp-p
50mV/5.0msec.cm
REC/PLAY



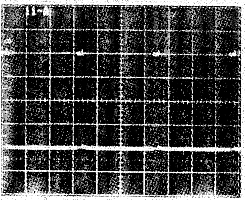
9-A IC201-26 60mVp-p
20mV/20.0μ sec.cm
REC



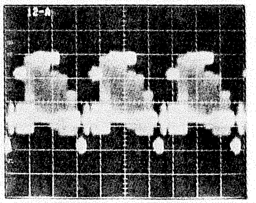
10-B IC201-39 700mVp-p
0.5V/5.0msec.cm
PLAY



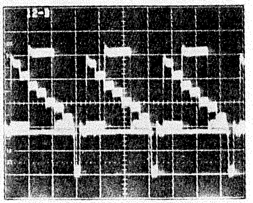
11-A IC202-3 4.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



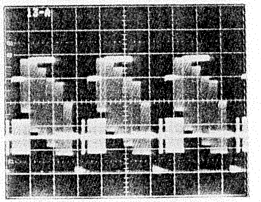
12-A IC202-8 200mVp-p
50mV/20.0μ sec.cm
REC



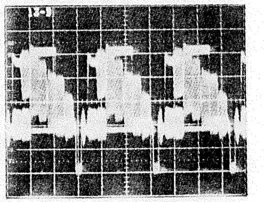
12-B IC202-8 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



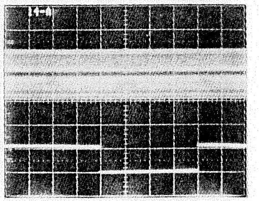
13-A IC202-11 950mVp-p
0.2V/20.0μ sec.cm
REC



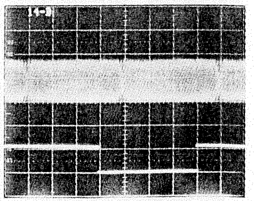
13-B IC202-11 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



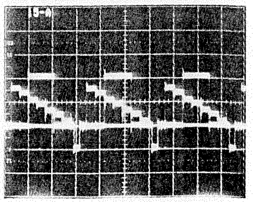
14-A IC202-19 450mVp-p
0.2V/5.0msec.cm
REC



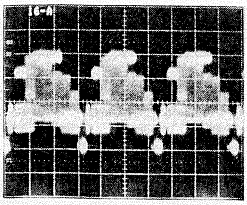
14-B IC202-19 350mVp-p
0.2V/5.0msec.cm
PLAY



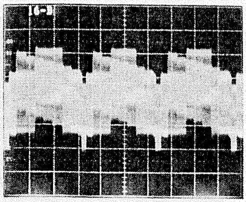
15-A IC202-24 640mVp-p
0.2V/20.0μ sec.cm
REC/PLAY



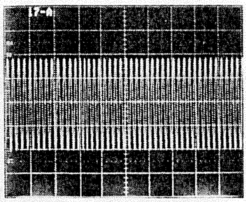
16-A IC202-27 200mVp-p
50mV/20.0μ sec.cm
REC



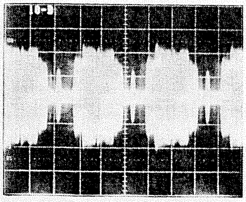
16-B IC202-27 430mVp-p
0.1V/20.0μ sec.cm
PLAY



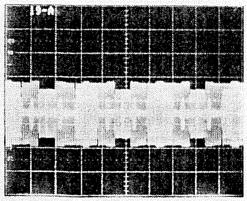
17-A IC203-3 380mVp-p
0.1V/1.0μ sec.cm
REC/PLAY



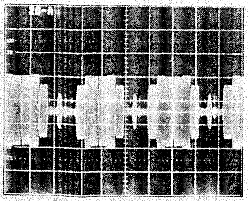
18-B IC203-7 420mVp-p
0.1V/20.0μ sec.cm
PLAY



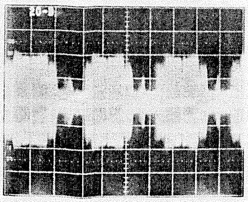
19-A IC203-20 570mVp-p
0.2V/20.0μ sec.cm
REC



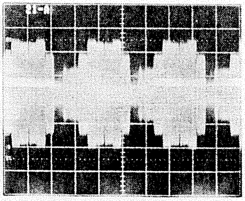
20-A IC203-23 600mVp-p
0.2V/20.0μ sec.cm
REC



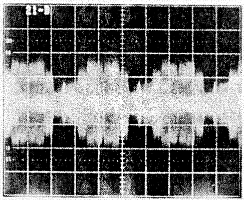
20-B IC203-23 800mVp-p
0.2V/20.0μ sec.cm
PLAY



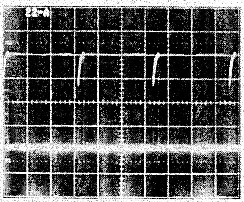
21-A IC203-26 230mVp-p
50mV/20.0μ sec.cm
REC



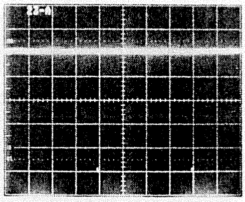
21-B IC203-26 190mVp-p
50mV/20.0μ sec.cm
PLAY



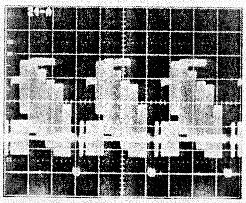
22-A IC203-32 4.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



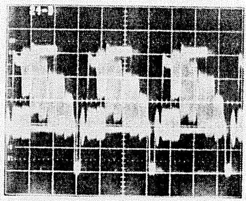
23-A IC204-8 5.1Vp-p
1V/5.0msec.cm
REC/PLAY



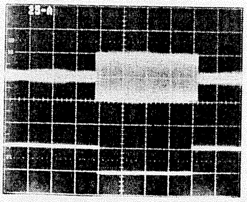
24-A IC204-12 940mVp-p
0.2V/20.0μ sec.cm
REC



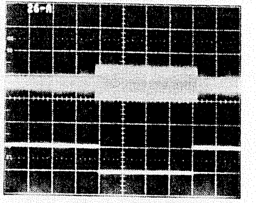
24-B IC204-12 1.0Vp-p
0.2V/20.0μ sec.cm
PLAY



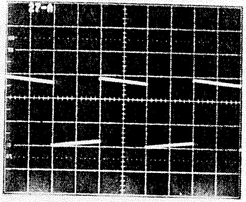
25-A TP201 200mVp-p
0.1V/5.0msec.cm
REC



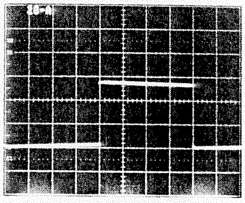
26-A TP202 70mVp-p
50mV/5.0msec.cm
REC



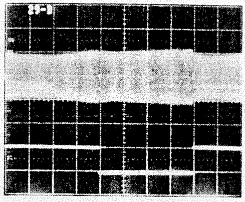
27-A TP204 5.8Vp-p
2V/20.0msec.cm
REC/PLAY



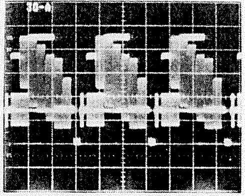
28-A TP205 5.5Vp-p
2V/5.0msec.cm
REC/PLAY



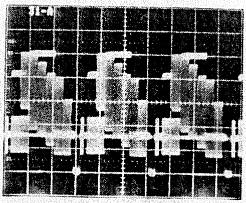
29-B TP206 200mVp-p
0.1V/5.0msec.cm
PLAY



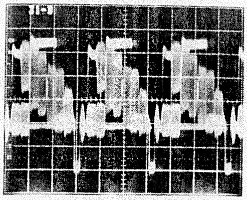
30-A TP208 920mVp-p
0.2V/20.0μ sec.cm
REC/PLAY



31-A TP209 1.0Vp-p
0.2V/20.0μ sec.cm
REC



31-B TP209 1.1Vp-p
0.2V/20.0μ sec.cm
PLAY



LUBRICATION

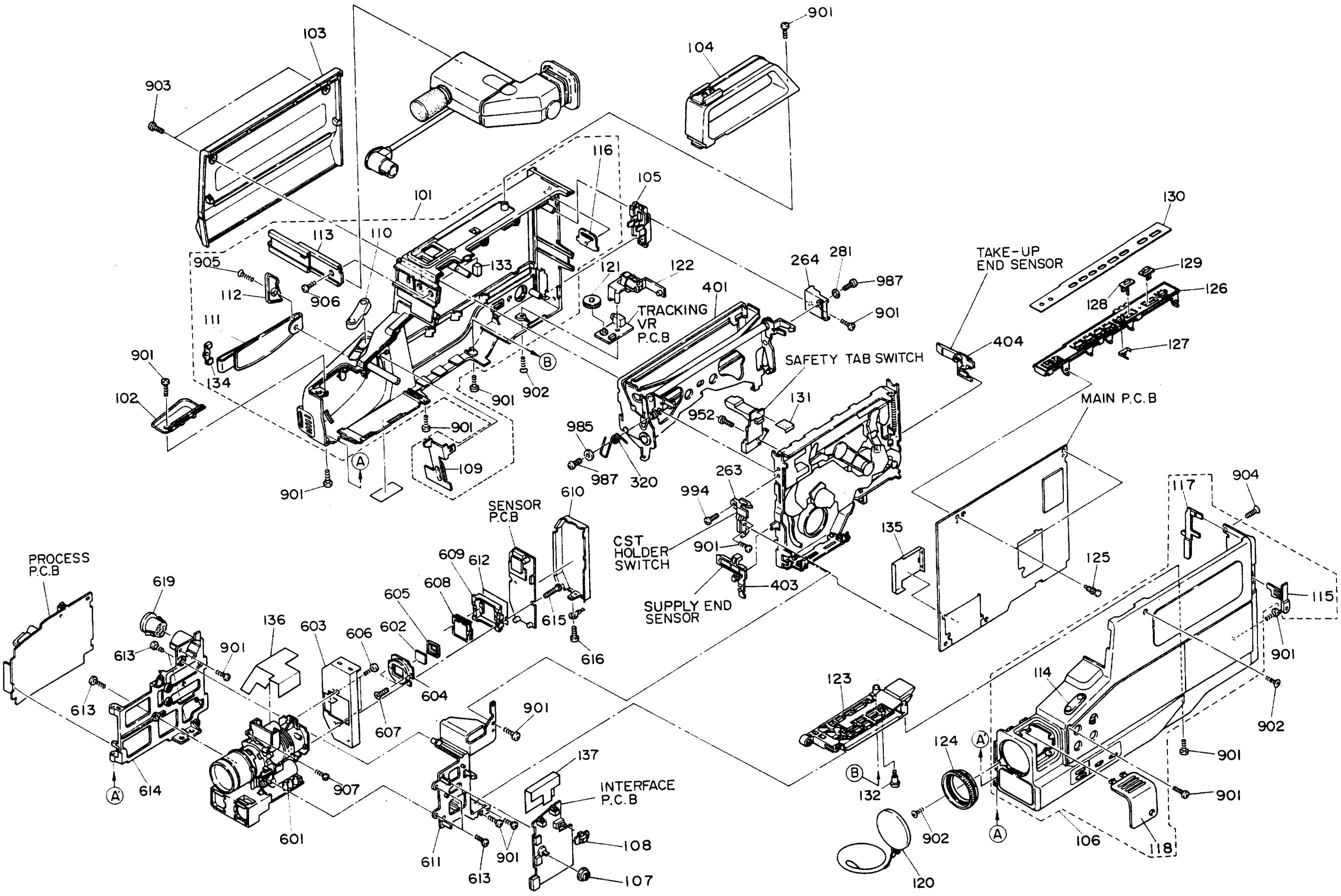
Lubrication points are shown in the exploded view diagrams by marks (Ⓢ,Ⓗ).

Lubricants shown in the diagram are as follows.

Ⓢ Sonic slider oil (#1600)

Ⓗ Hitazol (MO-138)

CABINET SECTION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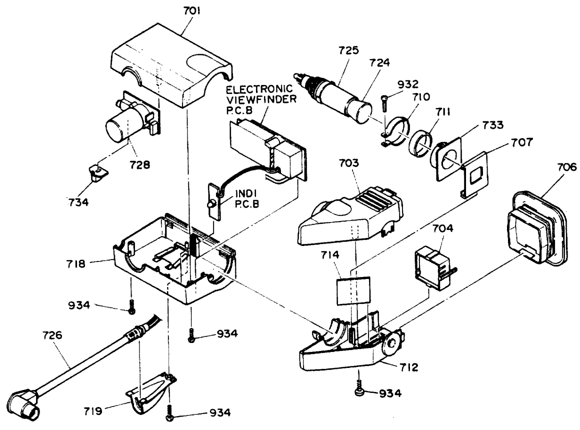
Ⓑ
TRACKING VR P.C.B
TAKE-UP END SENSOR
SAFETY TAB SWITCH
MAIN P.C.B
SENSOR P.C.B
CST HOLDER SWITCH
SUPPLY END SENSOR
PROCESS P.C.B
INTERFACE P.C.B

ELECTRONIC VIEWFINDER(EVF) SECTION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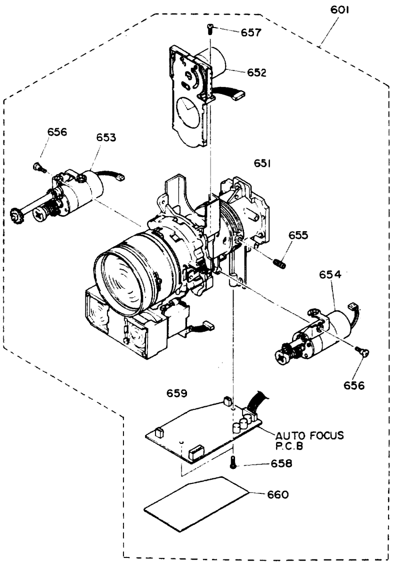
932
934
ELECTRONIC VIEWFINDER P.C.B
INDI P.C.B

LENS SECTION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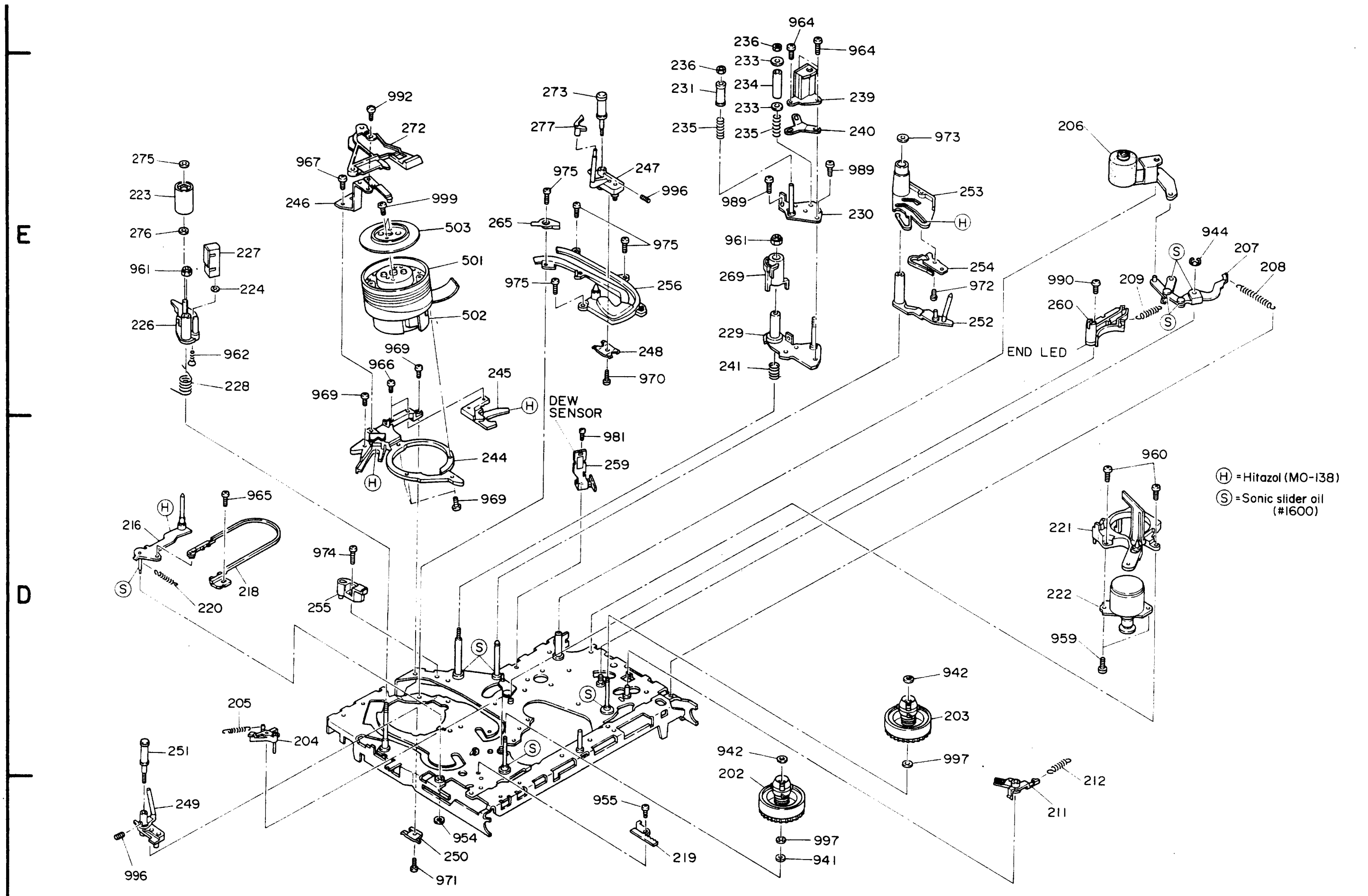
AUTO FOCUS P.C.B

CHASSIS (UPPER) SECTION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DEW SENSOR
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229
241
973
253
Ⓗ
254
972
252
206
944
207
Ⓢ
208
209
990
260
Ⓢ
END LED
960
Ⓗ =Hitazol (MO-138)
Ⓢ =Sonic slider oil (#1600)
221
222
959
Ⓗ
965
216
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Ⓢ
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255
Ⓢ
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203
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954
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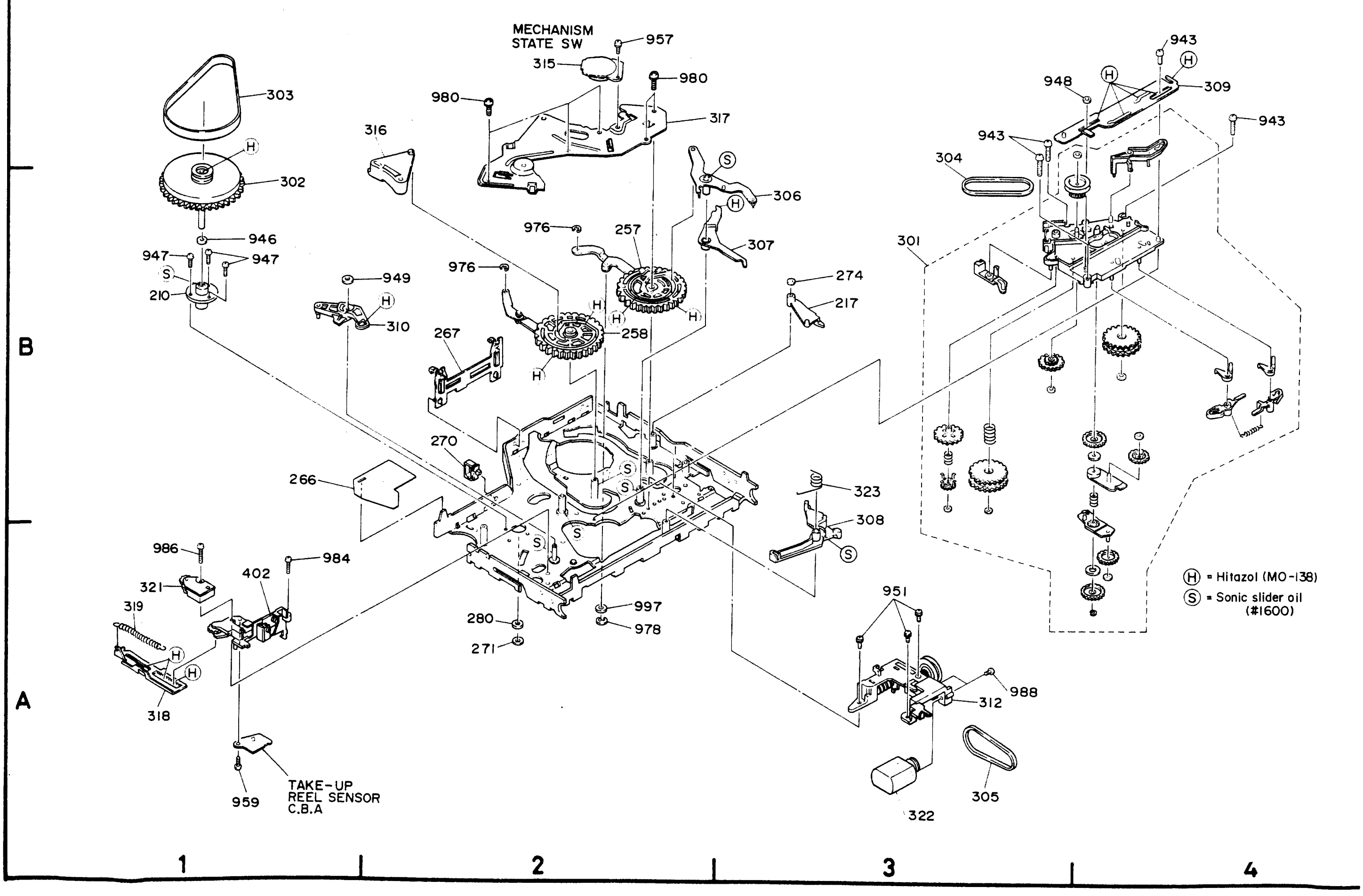
CHASSIS (LOWER) SECTION


B
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MECHANISM STATE SW
957
315
980
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303
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306
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318
997
280
978
271
951
988
312
305
322
959
TAKE-UP REEL SENSOR C.B.A
Ⓗ = Hitazol (MO-138)
Ⓢ = Sonic slider oil (#1600)

CHAPTER 7 REPLACEMENT PARTS LIST

VTR SECTION

SYMBOL-NO	P-NO	DESCRIPTION
C 201	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 203	0256685	ELECTROLYTIC 1UF 50V
C 205	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 206	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 207	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 208	0201001	CERAMIC CHIP 22PF+-5% 50V
C 209	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 210	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 211	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 212	0201001	CERAMIC CHIP 22PF+-5% 50V
C 213	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 214	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 215	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 216	0201001	CERAMIC CHIP 22PF+-5% 50V
C 217	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 218	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 219	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 220	0201001	CERAMIC CHIP 22PF+-5% 50V
C 222	0256841	ELECTROLYTIC 47UF 25V
C 223	0201028	CERAMIC CHIP 56PF+-5% 50V
C 224	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 225	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 226	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 227	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 228	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 232	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 233	0256159	ELECTROLYTIC 100UF 6. 3V
C 234	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 235	0256155	ELECTROLYTIC 10UF 16V
C 236	0201036	CERAMIC CHIP 270PF+-5% 50V
C 237	0201022	CERAMIC CHIP 15PF+-5% 50V
C 238	0256154	ELECTROLYTIC 4. 7UF 25V
C 241	0256154	ELECTROLYTIC 4. 7UF 25V
C 242	0201031	CERAMIC CHIP 100PF+-5% 50V
C 244	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 246	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 247	0201035	CERAMIC CHIP 220PF+-5% 50V
C 248	0201027	CERAMIC CHIP 47PF+-5% 50V
C 249	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 251	0201028	CERAMIC CHIP 56PF+-5% 50V
C 252	0256788	ELECTROLYTIC 1000UF 6. 3V
C 253	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 257	0256155	ELECTROLYTIC 10UF 16V
C 259	0256155	ELECTROLYTIC 10UF 16V
C 260	0201100	CERAMIC CHIP 0. 033UF+-10% 50V
C 261	0255138	ELECTROLYTIC 470UF 6. 3V
C 263	0201028	CERAMIC CHIP 56PF+-5% 50V
C 264	0201034	CERAMIC CHIP 180PF+-5% 50V
C 265	0201035	CERAMIC CHIP 220PF+-5% 50V
C 266	0256155	ELECTROLYTIC 10UF 16V
C 267	0256155	ELECTROLYTIC 10UF 16V
C 268	0201041	CERAMIC CHIP 680PF+-5% 50V
C 269	0201001	CERAMIC CHIP 22PF+-5% 50V
C 270	0256682	ELECTROLYTIC 0. 22UF 50V
C 271	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 272	0256170	ELECTROLYTIC 100UF 10V
C 273	0201029	CERAMIC CHIP 68PF+-5% 50V
C 275	0256159	ELECTROLYTIC 100UF 6. 3V
C 279	0201025	CERAMIC CHIP 33PF+-5% 50V
C 284	0256856	ELECTROLYTIC 330UH 6. 3V
C 285	0256154	ELECTROLYTIC 4. 7UF 25V
C 286	0201031	CERAMIC CHIP 100PF+-5% 50V
C 287	0256156	ELECTROLYTIC 22UF 16V
C 289	0201037	CERAMIC CHIP 330PF+-5% 50V
C 290	0201023	CERAMIC CHIP 18PF+-5% 50V
C 291	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 294	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 295	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 296	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 297	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 298	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 299	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 301	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 302	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 303	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 304	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 306	0201028	CERAMIC CHIP 56PF+-5% 50V
C 401	0201003	CERAMIC CHIP 0. 001UF+-20% 50V
C 402	0256711	ELECTROLYTIC 47UF 6. 3V
C 403	0256834	ELECTROLYTIC 10UF 16 V
C 405	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 406	0256705	ELECTROLYTIC 22UF 6. 3V
C 410	0201061	CERAMIC CHIP 0. 0047UF+-10% 50V
C 411	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 412	0256154	ELECTROLYTIC 4. 7UF 25V
C 415	0256154	ELECTROLYTIC 4. 7UF 25V
C 417	0201100	CERAMIC CHIP 0. 033UF+-10% 50V
C 419	0256159	ELECTROLYTIC 100UF 6. 3V
C 420	0256159	ELECTROLYTIC 100UF 6. 3V
C 421	0209995	CERAMIC CHIP 1. 0UF+80-20% 16V
C 422	0256159	ELECTROLYTIC 100UF 6. 3V
C 424	0201037	CERAMIC CHIP 330PF+-5% 50V
C 428	0201035	CERAMIC CHIP 220PF+-5% 50V
C 429	0201061	CERAMIC CHIP 0. 0047UF+-10% 50V
C 431	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 432	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 434	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 435	0201061	CERAMIC CHIP 0. 0047UF+-10% 50V
C 581	0256158	ELECTROLYTIC 47UF 16V
C 582	0256163	ELECTROLYTIC 100UF 16V
C 583	0256159	ELECTROLYTIC 100UF 6. 3V
C 585	0256163	ELECTROLYTIC 100UF 16V
C 586	0256163	ELECTROLYTIC 100UF 16V
C 588	0201042	CERAMIC CHIP 820PF+-5% 50V
C 589	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 590	0256158	ELECTROLYTIC 47UF 16V
C 591	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 603	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 604	0256690	ELECTROLYTIC 10UF 16V
C 606	0201035	CERAMIC CHIP 220PF+-5% 50V
C 607	0201031	CERAMIC CHIP 100PF+-5% 50V
C 608	0256170	ELECTROLYTIC 100UF 10V
C 611	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 612	0201001	CERAMIC CHIP 22PF+-5% 50V
C 615	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 617	0201031	CERAMIC CHIP 100PF+-5% 50V
C 619	0201003	CERAMIC CHIP 0. 001UF+-20% 50V
C 623	0201039	CERAMIC CHIP 470PF+-5% 50V
C 624	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 625	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 628	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 629	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 632	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 633	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 635	0201003	CERAMIC CHIP 0. 001UF+-20% 50V
C 636	0201057	CERAMIC CHIP 0. 0022UF+-10% 50V
C 637	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 638	0201039	CERAMIC CHIP 470PF+-5% 50V
C 639	0256837	ELECTROLYTIC 3. 3UF 25V
C 644	0207179	ELECTROLYTIC 10UF 16V
C 646	0201003	CERAMIC CHIP 0. 001UF+-20% 50V
C 647	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 650	0256472	ELECTROLYTIC TANTALU 2. 2UF 20V
C 651	0256472	ELECTROLYTIC TANTALU 2. 2UF 20V
C 652	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 653	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 654	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 655	0201031	CERAMIC CHIP 100PF+-5% 50V
C 656	0201039	CERAMIC CHIP 470PF+-5% 50V
C 657	0201039	CERAMIC CHIP 470PF+-5% 50V
C 658	0201039	CERAMIC CHIP 470PF+-5% 50V
C 660	0201007	CERAMIC CHIP 0. 01UF+-20% 50V
C 690	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 905	0256790	ELECTROLYTIC 220UF 6. 3V
C 906	0256869	ELECTROLYTIC 47UF 16V
C 910	0256489	ELECTROLYTIC 0. 047UF 5. 5V
C 911	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 912	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 913	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
C 920	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 945	0201065	CERAMIC CHIP 0. 022UF+-10% 25V
R 201	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 202	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 203	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 204	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 205	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 206	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 207	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 208	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 209	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 210	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 211	0103856	CHIP RESISTOR 12KOHM+-5% 0. 1W
R 212	0103876	CHIP RESISTOR 560KOHM+-5% 0. 1W
R 213	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 214	0103841	CHIP RESISTOR 680OHM+-5% 0. 1W
R 215	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 216	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 217	0103839	CHIP RESISTOR 470OHM+-5% 0. 1W
R 218	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 219	0103849	CHIP RESISTOR 3. 3KOHM+-5% 0. 1W
R 220	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 221	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W

SYMBOL-NO	P-NO	DESCRIPTION
R 222	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 223	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 224	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R 225	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 226	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 227	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 228	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 229	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 230	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 231	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 232	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 233	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 234	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 235	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 236	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 237	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 238	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 239	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 240	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 241	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 242	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 243	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 244	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 245	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 246	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 247	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 248	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 249	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 250	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 251	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 252	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 253	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 254	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 255	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 256	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 257	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 258	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 259	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 260	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 261	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 262	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 263	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 264	0103829	CHIP RESISTOR 68OHM+-5% 1/8W
R 265	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 266	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 267	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 269	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 270	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 280	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 281	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 282	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 283	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 284	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 286	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 287	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 288	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 291	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 294	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 295	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 296	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 297	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 298	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 299	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 300	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 301	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 302	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 303	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 304	0103880	CHIP RESISTOR 1.5MOHM+-10% 0.1W
R 401	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 402	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 403	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 404	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 405	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 406	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 407	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 408	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 409	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 410	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 411	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R 412	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 413	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 414	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 415	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R 416	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 417	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 418	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 419	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 420	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 422	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 423	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 424	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R 425	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 426	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 427	0170473	FUSE RESISTOR 4.7OHM +-5%
R 428	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 430	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 431	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 432	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 443	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 444	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 583	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 584	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 585	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 586	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 601	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 602	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 603	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 604	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 605	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 606	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 607	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 608	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 609	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 610	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 611	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 612	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 613	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 614	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 615	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 616	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 617	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 620	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 621	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 622	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 623	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 624	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 625	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 626	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R 627	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 628	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 629	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 630	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 631	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 632	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 633	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 634	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 635	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 636	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 637	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 638	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 639	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 640	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 642	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 643	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 644	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 645	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 646	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 647	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 650	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 651	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 655	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 656	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 659	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 660	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 661	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 665	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 666	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 667	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 670	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 671	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 672	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 673	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 674	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 675	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 676	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 677	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 678	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 679	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 680	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 681	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 682	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 683	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
R 684	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 685	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 686	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 687	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 688	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 689	0170045	RESISTOR 0. 5OHM+-5% 1/4W
R 690	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 691	0103875	CHIP RESISTOR 470KOHM+-5% 0. 1W
R 692	0103874	CHIP RESISTOR 390KOHM+-5% 0. 1W
R 693	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 694	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 695	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 696	0103868	CHIP RESISTOR 120KOHM+-5% 0. 1W
R 697	0103858	CHIP RESISTOR 18KOHM+-5% 0. 1W
R 698	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 699	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 901	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 902	0103859	CHIP RESISTOR 22KOHM+-5% 0. 1W
R 903	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 904	0103859	CHIP RESISTOR 22KOHM+-5% 0. 1W
R 905	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 906	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 907	0103836	CHIP RESISTOR 270OHM+-5% 0. 1W
R 908	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 909	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 910	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 911	0103859	CHIP RESISTOR 22KOHM+-5% 0. 1W
R 912	0103859	CHIP RESISTOR 22KOHM+-5% 0. 1W
R 913	0103841	CHIP RESISTOR 680OHM+-5% 0. 1W
R 914	0103876	CHIP RESISTOR 560KOHM+-5% 0. 1W
R 915	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 916	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 917	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 918	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 919	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 920	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 921	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 922	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 923	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 924	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 925	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 926	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 930	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 931	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 932	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 933	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 934	0103854	CHIP RESISTOR 8. 2KOHM+-5% 0. 1W
R 935	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 936	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 937	0103854	CHIP RESISTOR 8. 2KOHM+-5% 0. 1W
R 938	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 939	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 940	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 941	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 942	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 944	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 951	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 952	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 961	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 962	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 963	0103840	CHIP RESISTOR 560OHM+-5% 0. 1W
R 964	0103875	CHIP RESISTOR 470KOHM+-5% 0. 1W
R 965	0103875	CHIP RESISTOR 470KOHM+-5% 0. 1W
R 966	0103875	CHIP RESISTOR 470KOHM+-5% 0. 1W
R 967	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 968	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 969	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 970	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 971	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 972	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 973	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 974	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 975	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 976	0103827	CHIP RESISTOR 47OHM+-5% 0. 1W
R 977	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 978	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 980	0103861	CHIP RESISTOR 33KOHM+-5% 0. 1W
R 985	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 986	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 987	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 989	0103875	CHIP RESISTOR 470KOHM+-5% 0. 1W
R 990	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 991	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 992	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 993	0103873	CHIP RESISTOR 330KOHM+-5% 0. 1W
R 994	0103827	CHIP RESISTOR 47OHM+-5% 0. 1W
R 995	0103819	CHIP RESISTOR 10OHM+-5% 0. 1W
R 996	0103893	CHIP RESISTOR 75OHM+-5% 1/8W
R 997	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 998	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 999	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
RT 201	5007434	SEMI VARIABLE 4. 7KOHM
RT 202	5007433	RESISTOR SEMI VARIAB LE 2.2K OHM
RT 401	5007436	SEMI VARIABLE 22KOHM
RT 402	5007438	RESISTOR SEMI VARIABLE 100K OHM
RT 601	5007453	RESISTOR SEMI VARIABLE 470K OHM
RT 602	5007452	RESISTOR SEMI VARIABLE 220K OHM
RT 901	5007445	SEMI VARIABLE 2. 2KOHM
RT 902	5007446	SEMI VARIABLE 4. 7KOHM
RV 601	5005584	RESISTOR VARIABLE 500K OHM
D 125	5380931	LED GL-450
D 201	5331053	DIODE 1K60RL GERMANIUM 80MHZ 50MW
D 202	5328303	DIODE MA152WK (MU)
D 203	5328303	DIODE MA152WK (MU)
D 204	5328303	DIODE MA152WK (MU)
D 205	5328303	DIODE MA152WK (MU)
D 206	5328303	DIODE MA152WK (MU)
D 207	5328303	DIODE MA152WK (MU)
D 208	5328303	DIODE MA152WK (MU)
D 401	5328302	DIODE MA151WA (MN)
D 581	5332541	DIODE ERA81-004
D 582	5332541	DIODE ERA81-004
D 583	5332541	DIODE ERA81-004
D 584	5328303	DIODE MA152WK (MU)
D 601	5328303	DIODE MA152WK (MU)
D 602	5328303	DIODE MA152WK (MU)
D 603	5328303	DIODE MA152WK (MU)
D 604	5328303	DIODE MA152WK (MU)
D 607	5331671	DIODE DS135D-FA3
D 608	5331671	DIODE DS135D-FA3
D 609	5331671	DIODE DS135D-FA3
D 613	5328303	DIODE MA152WK (MU)
D 614	5328381	DIODE MA153 (MC)
D 621	5328303	DIODE MA152WK (MU)
D 630	5328381	DIODE MA153 (MC)
D 901	5381001	LED SLR34URC5
D 902	5331592	DIODE 1SS133
D 905	5328303	DIODE MA152WK (MU)
D 907	5328303	DIODE MA152WK (MU)
D 909	5328303	DIODE MA152WK (MU)
D 910	5328303	DIODE MA152WK (MU)
D 911	5328303	DIODE MA152WK (MU)
D 912	5328303	DIODE MA152WK (MU)
D 914	5328302	DIODE MA151WA (MN)
D 915	5328303	DIODE MA152WK (MU)
D 916	5328303	DIODE MA152WK (MU)
D 930	5328381	DIODE MA153 (MC)
D 970	5332542	DIODE SDIA81-04F
D 990	5328303	DIODE MA152WK (MU)
IC 201	5367551	IC HA11876NT
IC 202	5383113	IC HT4717B
IC 203	5383122	IC HT4529A
IC 204	5300532	IC LVA513A
IC 401	5363322	IC BA5114LS
IC 402	5364201	IC UPC1513HA
IC 581	5384731	MODULE HT4673
IC 601	5303011	IC HD49701A
IC 604	5369911	IC M54548L
IC 605	5366371	IC HA13434
IC 606	5366601	IC BA6305
IC 607	1388071	MODULE BX7581F
IC 901	5306521	IC HD614042FH33
IC 903	5369171	IC M54543L
IC 904	5368711	IC MB89009-102
IC 905	5364602	IC M5278L56
IC 906	5366501	IC AN6541
IC 909	1388081	MODULE BX7580F
Q 119	5382141	PHOTO TRANSISTOR NJL5161K
Q 123	5380131	TRANSISTOR PH101 PHOTO
Q 124	5380131	TRANSISTOR PH101 PHOTO
Q 201	5328971	TRANSISTOR 2SC2412KBRST
Q 202	5328792	TRANSISTOR DTA124K (15)
Q 203	5328793	TRANSISTOR DTC144K-26
Q 204	5328971	TRANSISTOR 2SC2412KBRST
Q 205	5328335	TRANSISTOR 2SB709A-RS-T
Q 206	5328971	TRANSISTOR 2SC2412KBRST
Q 207	5328971	TRANSISTOR 2SC2412KBRST
Q 208	5328335	TRANSISTOR 2SB709A-RS-T
Q 211	5328971	TRANSISTOR 2SC2412KBRST
Q 212	5328971	TRANSISTOR 2SC2412KBRST
Q 213	5328335	TRANSISTOR 2SB709A-RS-T
Q 214	5328792	TRANSISTOR DTA124K (15)

SYMBOL-NO	P-NO	DESCRIPTION
Q 215	5328793	TRANSISTOR DTC144K-26
Q 216	5328335	TRANSISTOR 2SB709A-RS-T
Q 217	5328793	TRANSISTOR DTC144K-26
Q 218	5328335	TRANSISTOR 2SB709A-RS-T
Q 219	5328793	TRANSISTOR DTC144K-26
Q 220	5328971	TRANSISTOR 2SC2412KBRST
Q 221	5328971	TRANSISTOR 2SC2412KBRST
Q 222	5328971	TRANSISTOR 2SC2412KBRST
Q 226	5328793	TRANSISTOR DTC144K-26
Q 227	5328971	TRANSISTOR 2SC2412KBRST
Q 228	5328971	TRANSISTOR 2SC2412KBRST
Q 229	5328792	TRANSISTOR DTA124K (15)
Q 230	5328971	TRANSISTOR 2SC2412KBRST
Q 404	5328351	TRANSISTOR 2SD602R (WR)
Q 581	5324081	TRANSISTOR 2SB962
Q 582	5324501	TRANSISTOR 2SB1181
Q 583	5324081	TRANSISTOR 2SB962
Q 586	5328971	TRANSISTOR 2SC2412KBRST
Q 587	5328335	TRANSISTOR 2SB709A-RS-T
Q 601	5328971	TRANSISTOR 2SC2412KBRST
Q 602	5328335	TRANSISTOR 2SB709A-RS-T
Q 603	5328793	TRANSISTOR DTC144K-26
Q 604	5328793	TRANSISTOR DTC144K-26
Q 605	5328971	TRANSISTOR 2SC2412KBRST
Q 901	5328971	TRANSISTOR 2SC2412KBRST
Q 902	5328971	TRANSISTOR 2SC2412KBRST
Q 903	5328971	TRANSISTOR 2SC2412KBRST
Q 904	5328335	TRANSISTOR 2SB709A-RS-T
Q 905	5328335	TRANSISTOR 2SB709A-RS-T
Q 906	5328335	TRANSISTOR 2SB709A-RS-T
Q 907	5328971	TRANSISTOR 2SC2412KBRST
Q 909	5328793	TRANSISTOR DTC144K-26
Q 910	5328335	TRANSISTOR 2SB709A-RS-T
Q 911	5328793	TRANSISTOR DTC144K-26
Q 912	5328792	TRANSISTOR DTA124K (15)
Q 913	5328335	TRANSISTOR 2SB709A-RS-T
Q 914	5328971	TRANSISTOR 2SC2412KBRST
QF 581	5721802	ICPROTECTOR ICP-N5
ZD 401	5331586	DIODE RD3.6E-B2
ZD 581	5332635	DIODE SDID4R7J-B2
ZD 601	5330395	DIODE HZ6A3 SI ZENER 1MHZ 0.4W
ZD 901	5330718	DIODE HZ-9A-2
ZD 902	5332091	DIODE RD3.6E-B2
ZD 903	5330717	DIODE HZ-7B-3
ZD 904	5330717	DIODE HZ-7B-3
ZD 905	5330717	DIODE HZ-7B-3
ZD 906	5330717	DIODE HZ-7B-3
T 401	5261282	OSC COIL
L 201	5159207	CHOKE COIL 100UH
L 203	5159207	CHOKE COIL 100UH
L 205	5159207	CHOKE COIL 100UH
L 207	5159207	CHOKE COIL 100UH
L 209	5159207	CHOKE COIL 100UH
L 211	5159215	CHOKE COIL 390UH
L 212	5159207	CHOKE COIL 100UH
L 213	5159207	CHOKE COIL 100UH
L 214	5159197	CHOKE COIL 18UH
L 216	5159207	CHOKE COIL 100UH
L 217	5159201	CHOKE COIL 33UH
L 218	5152972	CHOKE COIL 12MH+-5%
L 219	5159211	CHOKE COIL 180UH
L 220	5159195	CHOKE COIL 12UH
L 221	5159206	CHOKE COIL 82UH
L 222	5159194	CHOKE COIL 10UH
L 223	5159205	CHOKE COIL 68UH
L 225	5159207	CHOKE COIL 100UH
L 226	5159207	CHOKE COIL 100UH
L 227	5159212	CHOKE COIL 220UH
L 228	5159202	CHOKE COIL 39UH
L 229	5159199	CHOKE COIL 27UH
L 401	5152815	CHOKE COIL 22MH+-5%
L 402	5152971	CHOKE COIL 5.6UH
L 403	5152346	CHOKE COIL 470UH
L 581	5153141	CHOKE COIL 50UH
L 582	5153142	CHOKE COIL 120UH
L 583	5153143	COIL 22UH
L 584	5152943	CHOKE COIL 390UH
L 585	5152943	CHOKE COIL 390UH
L 586	5153143	COIL 22UH
CN 903	5883581	MINI CONNECTOR
CP 201	5124133	TRAP COIL
CP 202	5162962	DELAY LINE
CP 203	5162475	BAND PASS FILTER
CP 204	5162755	TRAP COIL
CX 901	5781801	CRYSTAL
DL 201	5785872	DELAY LINE

SYMBOL-NO	P-NO	DESCRIPTION
DL 202	5785385	DELAY LINE
DL 203	5162885	DELAY LINE
F 970	5720177	FUSE 2A
H 970	5722214	FUSE HOLDER
H 971	5722214	FUSE HOLDER
J 101	5673381	JACK-3.5MMD
J 970	5672151	DC JACK
RL 901	5641901	RELAY
S 121	5635221	PUSH SWITCH
S 122	5605332	SWITCH
S 901	5635291	SWITCH
S 902	5635291	SWITCH
S 903	5635113	SWITCH
S 904	5635113	SWITCH
S 905	5635113	SWITCH
S 906	5635113	SWITCH
S 907	5635113	SWITCH
S 908	5635113	SWITCH
S 909	5635113	SWITCH
S 911	5622811	SLIDE SWITCH

CAMERA SECTION

C 001	0256381	ELECTROLYTIC 3.3UF 16V
C 002	0256694	ELECTROLYTIC 22UF 6.3V
C 004	0256686	ELECTROLYTIC 2.2UF 35V
C 005	0256392	ELECTROLYTIC 22UF 6.3V
C 006	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 007	0201024	CERAMIC CHIP 27PF+-5% 50V
C 008	0201024	CERAMIC CHIP 27PF+-5% 50V
C 009	0201013	CERAMIC CHIP 3PF+-0.25% 50V
C 010	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 011	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 012	0256835	ELECTROLYTIC 1UF 50V
C 013	0256398	TANTALUM 68UF 6.3V
C 014	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 015	0256392	ELECTROLYTIC 22UF 6.3V
C 016	0256392	ELECTROLYTIC 22UF 6.3V
C 017	0256392	ELECTROLYTIC 22UF 6.3V
C 018	0256392	ELECTROLYTIC 22UF 6.3V
C 019	0256709	ELECTROLYTIC 100UF 6.3V
C 020	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 021	0256689	ELECTROLYTIC 10UF 6.3V
C 022	0256694	ELECTROLYTIC 22UF 6.3V
C 023	0256694	ELECTROLYTIC 22UF 6.3V
C 024	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 025	0201023	CERAMIC CHIP 18PF+-5% 50V
C 026	0201023	CERAMIC CHIP 18PF+-5% 50V
C 027	0201023	CERAMIC CHIP 18PF+-5% 50V
C 028	0201023	CERAMIC CHIP 18PF+-5% 50V
C 029	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 030	0201023	CERAMIC CHIP 18PF+-5% 50V
C 031	0201023	CERAMIC CHIP 18PF+-5% 50V
C 032	0201023	CERAMIC CHIP 18PF+-5% 50V
C 033	0201023	CERAMIC CHIP 18PF+-5% 50V
C 034	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 035	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 036	0256163	ELECTROLYTIC 100UF 16V
C 037	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 038	0256694	ELECTROLYTIC 22UF 6.3V
C 039	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 040	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 041	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 042	0201023	CERAMIC CHIP 18PF+-5% 50V
C 043	0201023	CERAMIC CHIP 18PF+-5% 50V
C 044	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 045	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 046	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 047	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 048	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 049	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 050	0201039	CERAMIC CHIP 470PF+-5% 50V
C 051	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 052	0201029	CERAMIC CHIP 68PF+-5% 50V
C 053	0201029	CERAMIC CHIP 68PF+-5% 50V
C 054	0201029	CERAMIC CHIP 68PF+-5% 50V
C 055	0201029	CERAMIC CHIP 68PF+-5% 50V
C 101	0256694	ELECTROLYTIC 22UF 6.3V
C 104	0256762	CAPACITOR 220UF 16V ELECTROLYTIC
C 105	0256685	ELECTROLYTIC 1UF 50V
C 106	0256694	ELECTROLYTIC 22UF 6.3V
C 107	0256690	ELECTROLYTIC 10UF 16V
C 108	0256685	ELECTROLYTIC 1UF 50V
C 109	0256688	ELECTROLYTIC 4.7UF 16V
C 110	0256689	ELECTROLYTIC 10UF 6.3V

SYMBOL-NO	P-NO	DESCRIPTION
C 111	0256694	ELECTROLYTIC 22UF 6. 3V
C 112	0256790	ELECTROLYTIC 220UF 6. 3V
C 113	0256694	ELECTROLYTIC 22UF 6. 3V
C 114	0256692	ELECTROLYTIC 22UF 16V
C 115	0256692	ELECTROLYTIC 22UF 16V
C 116	0256158	ELECTROLYTIC 47UF 16V
C 117	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 118	0256785	ELECTROLYTIC 470UF 16V
C 119	0256783	ELECTROLYTIC 100UF 10V
C 120	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 121	0256782	ELECTROLYTIC 220UF 10V
C 122	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 123	0256687	ELECTROLYTIC 3. 3UF 25V
C 124	0201032	CERAMIC CHIP 120PF+-5% 50V
C 125	0256685	ELECTROLYTIC 1UF 50V
C 126	0256835	ELECTROLYTIC 1UF 50V (E) (UK) ONLY
C 401	0201031	CERAMIC CHIP 100PF+-5% 50V
C 402	0201031	CERAMIC CHIP 100PF+-5% 50V
C 403	0201069	CERAMIC CHIP 0. 1UF+80-20% 25V
C 404	0256686	ELECTROLYTIC 2. 2UF 35V
C 405	0256692	ELECTROLYTIC 22UF 16V
C 406	0201038	CERAMIC CHIP 390PF+-5% 50V
C 407	0201038	CERAMIC CHIP 390PF+-5% 50V
C 408	0201038	CERAMIC CHIP 390PF+-5% 50V
C 409	0201038	CERAMIC CHIP 390PF+-5% 50V
CT 001	5058541	TRIMMER 35PF
R 002	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 003	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 004	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 005	0103831	CHIP RESISTOR 100OHM+-5% 0. 1W
R 006	0103831	CHIP RESISTOR 100OHM+-5% 0. 1W
R 007	0103831	CHIP RESISTOR 100OHM+-5% 0. 1W
R 008	0103844	CHIP RESISTOR 1. 2KOHM+-5% 0. 1W
R 009	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 010	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 011	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 012	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 013	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 014	0103838	CHIP RESISTOR 390OHM+-5% 0. 1W
R 015	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 017	0103853	CHIP RESISTOR 6. 8KOHM+-5% 0. 1W
R 019	0103852	CHIP RESISTOR 5. 6KOHM+-5% 0. 1W
R 020	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 021	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 024	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 025	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 026	0103844	CHIP RESISTOR 1. 2KOHM+-5% 0. 1W
R 027	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 028	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 029	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 030	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 031	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 032	0103879	CHIP RESISTOR 1MOHM+-5% 0. 1W
R 033	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 034	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 035	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 042	0103828	CHIP RESISTOR 56OHM+-5% 0. 1W
R 043	0103828	CHIP RESISTOR 56OHM+-5% 0. 1W
R 048	0103828	CHIP RESISTOR 56OHM+-5% 0. 1W
R 049	0103828	CHIP RESISTOR 56OHM+-5% 0. 1W
R 050	0103849	CHIP RESISTOR 3. 3KOHM+-5% 0. 1W
R 051	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 052	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 053	0103849	CHIP RESISTOR 3. 3KOHM+-5% 0. 1W
R 054	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 055	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 056	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 057	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 058	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 059	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 060	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 061	0103857	CHIP RESISTOR 15KOHM+-5% 0. 1W
R 062	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 071	0103845	CHIP RESISTOR 1. 5KOHM+-5% 0. 1W
R 072	0103845	CHIP RESISTOR 1. 5KOHM+-5% 0. 1W
R 073	0103845	CHIP RESISTOR 1. 5KOHM+-5% 0. 1W
R 074	0103845	CHIP RESISTOR 1. 5KOHM+-5% 0. 1W
R 075	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 076	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 077	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 078	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 083	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 084	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 101	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 102	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 103	0103865	CHIP RESISTOR 68KOHM+-5% 0. 1W
R 104	0103860	CHIP RESISTOR 27KOHM+-5% 0. 1W
R 105	0103858	CHIP RESISTOR 18KOHM+-5% 0. 1W
R 106	0103848	CHIP RESISTOR 2. 7KOHM+-5% 0. 1W
R 107	0103837	CHIP RESISTOR 330OHM+-5% 0. 1W
R 108	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 109	0103858	CHIP RESISTOR 18KOHM+-5% 0. 1W
R 110	0103858	CHIP RESISTOR 18KOHM+-5% 0. 1W
R 111	0103856	CHIP RESISTOR 12KOHM+-5% 0. 1W
R 112	0103856	CHIP RESISTOR 12KOHM+-5% 0. 1W
R 113	0103859	CHIP RESISTOR 22KOHM+-5% 0. 1W
R 114	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 115	0103877	CHIP RESISTOR 680KOHM+-5% 0. 1W
R 116	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 117	0103866	CHIP RESISTOR 82KOHM+-5% 0. 1W
R 118	0103846	CHIP RESISTOR 1. 8KOHM+-5% 0. 1W
R 119	0103840	CHIP RESISTOR 560OHM+-5% 0. 1W
R 120	0103852	CHIP RESISTOR 5. 6KOHM+-5% 0. 1W
R 121	0103861	CHIP RESISTOR 33KOHM+-5% 0. 1W
R 122	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 123	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 124	0103847	CHIP RESISTOR 2. 2KOHM+-5% 0. 1W
R 126	0103857	CHIP RESISTOR 15KOHM+-5% 0. 1W
R 128	0103850	CHIP RESISTOR 3. 9KOHM+-5% 0. 1W
R 129	0103850	CHIP RESISTOR 3. 9KOHM+-5% 0. 1W
R 133	0103856	CHIP RESISTOR 12KOHM+-5% 0. 1W
R 135	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W (E) (UK) ONLY
R 401	0103842	CHIP RESISTOR 820OHM+-5% 0. 1W
R 402	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 403	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 404	0103843	CHIP RESISTOR 1KOHM+-5% 0. 1W
R 405	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 406	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 407	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 408	0103851	CHIP RESISTOR 4. 7KOHM+-5% 0. 1W
R 409	0103853	CHIP RESISTOR 6. 8KOHM+-5% 0. 1W
R 410	0103855	CHIP RESISTOR 10KOHM+-5% 0. 1W
R 412	0103863	CHIP RESISTOR 47KOHM+-5% 0. 1W
R 413	0103867	CHIP RESISTOR 100KOHM+-5% 0. 1W
R 414	0103836	CHIP RESISTOR 270OHM+-5% 0. 1W
RT 101	5007452	RESISTOR SEMI VARIABLE 220K OHM
RT 102	5007715	SEMI VARIABLE 10KOHM
RT 401	5005585	RESISTOR VARIABLE 5KOHM
D 001	5331031	DIODE 1SV68-01
D 101	5328321	DIODE MA151K (MH)
D 102	5328321	DIODE MA151K (MH)
D 103	5328381	DIODE MA153K (MC)
D 401	5328321	DIODE MA151K (MH)
IC 002	5387761	MODULE HT5580
IC 003	5387761	MODULE HT5580
IC 004	1387472	MODULE HES8110A
IC 005	5305042	IC HD62991CA
IC 006	5300581	IC HA118002 FP
IC 007	5304292	IC HA118031A
IC 101	5387782	RESISTOR BLOCK R1907A
IC 102	5386981	MODULE HT5589
IC 103	5387642	MODULE HT5613A
IC 104	5387613	MODULE HT5625B
IC 105	5386862	MODULE HT5548A
IC 106	5386843	MODULE HT5557B
IC 107	5387322	MODULE HT5542A
IC 108	1387001	MODULE HES8104
IC 109	5300841	IC NJM2225S
IC 110	5366241	IC LAG624
IC 111	5385561	MODULE HT5317
IC 112	5386411	MODULE HT5319
IC 401	5306322	IC IPC7564G513
Q 001	5328791	TRANSISTOR DTC 124K (25)
Q 002	5328192	TRANSISTOR 2SC2462LD
Q 101	5328192	TRANSISTOR 2SC2462LD
Q 102	5328272	TRANSISTOR 2SK160 (5) (K)
Q 103	5328791	TRANSISTOR DTC 124K (25)
Q 104	5328791	TRANSISTOR DTC 124K (25)
Q 105	5328791	TRANSISTOR DTC 124K (25)
Q 106	5326222	TRANSISTOR DTC363 (H27)
Q 107	5328793	TRANSISTOR DTC144K-26
Q 108	5326204	TRANSISTOR FMG1
Q 401	5328192	TRANSISTOR 2SC2462LD
QF 101	5721803	IC PROTECTOR ICP-N10
ZD 401	5339213	DIODE RD2. 7MB2
ZD 402	5328365	DIODE RD5. 1M-B2
ZD 403	5328369	DIODE RD6. 8M-B3
ZD 404	5328369	DIODE RD6. 8M-B3
L 001	5152607	CHOKE COIL 100UH+-10%
L 101	5152607	CHOKE COIL 100UH+-10%
L 102	5152607	CHOKE COIL 100UH+-10%

SYMBOL-NO	P-NO	DESCRIPTION
L 103	5152612	CHOKE COIL 220UH
L 104	5152962	CHOKE COIL 220UH
L 105	5152962	CHOKE COIL 220UH
L 401	5152349	CHOKE COIL 820MH
X 001	5781931	CRYSTAL
X 401	5781861	CRYSTAL
CP 101	5163761	LC FILTER
RM 101	1387651	RESISTOR BLOCK RM22
S 101	5635291	SWITCH
S 102	5635291	SWITCH
S 103	5635291	SWITCH
S 401	5635291	SWITCH
S 402	5633911	SWITCH
S 403	5633911	SWITCH
S 404	5621471	SWICH
S 405	5633673	SWITCH (CH)
S 406	5633911	SWITCH
S 407	5635291	SWITCH
S 408	5621471	SWICH
S 409	5635291	SWITCH
S 410	5635291	SWITCH

ELECTRONIC VIEWFINDER SECTION

SYMBOL-NO	P-NO	DESCRIPTION
C 801	0256170	ELECTROLYTIC 100UF 10V
C 802	0256690	ELECTROLYTIC 10UF 16V
C 804	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 805	0256170	ELECTROLYTIC 100UF 10V
C 806	0256782	ELECTROLYTIC 220UF 10V
C 807	0256690	ELECTROLYTIC 10UF 16V
C 809	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C 811	0256692	ELECTROLYTIC 22UF 16V
C 814	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 815	0256701	ELECTROLYTIC 3.3UF 100V
C 816	0201997	CERAMIC DISC 0.1UF+80-20% 50V
C 817	0201037	CERAMIC CHIP 330PF+-5% 50V
C 818	0201039	CERAMIC CHIP 470PF+-5% 50V
C 819	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 820	0256360	ELECTROLYTIC 0.1UF 35V
C 821	0256687	ELECTROLYTIC 3.3UF 25V
C 822	0256685	ELECTROLYTIC 1UF 50V
C 823	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 824	0256170	ELECTROLYTIC 100UF 10V
C 826	0256690	ELECTROLYTIC 10UF 16V
C 828	0201997	CERAMIC DISC 0.1UF+80-20% 50V
C 829	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
R 801	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 802	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 803	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 804	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 805	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 806	0103818	CHIP RESISTOR 8.2OHM+-10% 0.1W
R 807	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 808	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 809	0103880	CHIP RESISTOR 1.5MOHM+-10% 0.1W
R 810	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 811	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 812	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 813	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R 814	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 815	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 816	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 817	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 818	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 819	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 820	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 821	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 822	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 823	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 824	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 825	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
RT 801	5007715	SEMI VARIABLE 10KOHM
RT 802	5007711	SEMI VARIABLE 470OHM
RT 803	5007468	RESISTOR VARIABLE 1MOHM
RT 805	5007468	RESISTOR VARIABLE 1MOHM
D 801	5331002	TRANSISTOR 1SS81
D 802	5328321	DIODE MA151K (MH)
D 803	5380691	LED SLR34UR5
IC 801	5364742	IC BA7125L
Q 801	5328211	TRANSISTOR 2SA1121C (SC)
Q 802	5328241	TRANSISTOR 2SC2463E (DE)
Q 803	5323831	TRANSISTOR 2SD974
T 801	5240322	FLYBACK TRANSFORMER
L 801	5152612	CHOKE COIL 220UH
L 802	5152598	CHOKE COIL 220MH+-10%
L 803	5244002	LINEAR COIL
CS 801	5654625	SOCKET, CRT
TF 801	5721352	FUSE

MECHANISM SECTION

101	6012785	CASE, SIDE (R) (E) (UK)
101	6012787	CASE, SIDE (R) (AV) (AU) (I)
102	6176901	GRIP LID
103	6231059	LID, CASSETTE
104	6336031	HANDLE ASSY
105	6889088	SPRING
106	6012795	CASE, SIDE (L)
107	6077864	KNOB (IRIS)
108	6077852	KNOB (SLIDE)
109	6088199	BUTTON, START
110	6088203	BUTTON, T/W
111	6335818	STRAP, HAND
112	6029052	COVER, STRAP
113	6438113	SHOE, EVF
114	6088185	BUTTON, PF
115	6086233	BUTTON-RELEASE
116	7367883	STRAP PLATE
117	6889227	LOCK LEVER
118	6900357	COVER, LENS
120	6232032	CAP
121	6076502	KNOB
122	6801851	HOLDER, JACK
123	6895993	FRAME, BOTTOM
124	6013641	HOOD AS
125	6714215	NYLON RIVET
126	6073091	FRAME, BUTTON
127	6526242	SPRING
128	6078293	KNOB, POWER
129	6078301	KNOB, CHANGE
130	6463781	SHEET
131	7700952	SPACER
132	7784371	SCREW
133	6561681	SPACER
134	6438031	HOLDER, CAP
135	7494061	PLATE, SHIELD
136	7703111	SPACER
137	7703101	SPACER
202	6894477	REEL TABEL SUPPLY
203	6887717	TAKE-UP REEL TABLE
204	6888263	SUB BRAKE
205	6544711	SPRING
206	6384224	ARM, PRESSURE ROLLER
207	7392883	PRESSURE ROLLER LINK
208	6544725	SPRING
209	6544762	SPRING
210	6979807	HOLDER, FLYWHEEL
211	6888933	SUB BRAKE
212	6544981	SPRING
216	7411771	TENTION ARM
217	6975532	ARM, SETTING OFF
218	7368001	TENSION BAND
219	7398371	HOLDER
220	6544993	SPRING
221	6894673	HOLDER
222	5578435	MOTOR, CAPSTAN
223	6343963	IMPEDANCE ROLLER
224	6975504	BASE, CYLINDER
226	6894615	ARM, HEAD
227	5447761	FELL ERASE HEAD
228	6551042	SPRING
229	7393017	ARM, HEAD
230	7392985	PLATE
231	4506001	GUIDE ROLLER
233	4504011	FLANGE
234	4504463	SHAFT
235	6522432	SPRING
236	7785621	NUT
239	5443402	HEAD-AUDIO CONTROL
240	6539041	HEAD SPRING
241	6522443	SPRING
244	6975504	BASE, CYLINDER
245	6974861	CACHER
246	5790983	BRUAH
247	6911371	BASE, GUIDE ROLLER
248	7392783	PLATE
249	6975516	BASE, GUIDEROLLER (IN)
250	7394151	PLATE
251	4503404	GUIDE ROLLER
252	6976303	ARM
253	6888802	ARM

SYMBOL-NO	P-NO	DESCRIPTION
254	6539053	SPRING
255	6893882	STOPPER
256	6894662	RAIL
257	7411663	LOADING LINK (IN)
258	7411673	LOADING LINK (OUT)
259	0173042	DEW SENSOR
260	6888984	HOLDER-LED
263	6900131	MACHA HOLDER (S)
264	6895772	HOLDER
265	6526041	SPRING
266	7700435	COVER, BELT
267	6900301	HINGE
269	6894752	HOLDER-WIRE
270	6876484	CRIP
271	6890221	OIL SHEEL
272	6894704	BRACKET
273	4503406	GUIDE ROLLER
274	7786119	POLYESTER WASHER
275	7787575	POLYSLIDER WASHER
276	7778855	POLYSLIDER WASHER
277	6896102	CAP
280	7599733	FLYWHEEL HOLDER
281	7789951	WASHER
301	7031876	GEAR, BLOCK
302	6375093	FLY WHEEL
303	6358012	BELT
304	6356445	BELT
305	6356472	BELT
306	7411752	ARM
307	6894721	CAM GEAR ARM
308	6896453	ARM, OPERATION
309	7393058	SLIDER
310	6894382	PR ARM ASSEMBLY
312	6434823	GEAR
315	5612642	SWITCH
316	6888553	FUNCTION ARM
317	7416511	GEAR PLATE
318	7411983	BRACKET, SLIDER
319	6550942	SPRING
320	6544783	SPRING
321	6344633	DUMPER
322	5578754	MOTOR, LOADING
323	6551131	SPRING
401	7411815	CASSETTE HOLDER ASSY
402	6895517	HOLDER, LOCK
403	6894741	HOLDER
404	6894731	HOLDER-END SENSOR
501	5436093	UPPER CYLINDER
502	5457992	LOWER CYLINDER
503	5457981	DAMPPER
601	6957184	LENS, ZOOM
602	5781771	FILTER
603	7483514	CASE, SHIELD
604	6899622	COVER-SENSOR
605	6592924	RUBBER
606	8691306	BT SCREW 2. 6MM
607	7784011	SCREW, 2X6
608	5318101	IC HE98247 MOS IMAGE DEVICE
609	6976543	PLATE, SENSOR
610	7483975	PLATE, SHIELD
611	6176821	LENS FRAME B
612	7701501	SHEET
613	8691106	SCREW (2X6)
614	6176831	LENS FRAME A
615	8612114	SCREW (2X14)
616	8741104	SCREW (2X4)
619	5884866	CONNECTOR-EVF
651	6957551	LENS-ZOOM (SUB ASSY)
652	6957562	MOTOR-IRIS
653	6957553	MOTOR-AUTO FOCUS
654	6957554	MOTOR-ZOOM
655	6957556	SCREW
656	6957557	SCREW
657	6957558	SCREW
658	6957559	SCREW
659	6957555	PWB ASSY AUTO FOCUS
660	6957561	SHEET
701	6013451	CASE, UPPERM
703	6900261	UPPER NECK
704	6950641	LENS ASSY
706	6012291	EYE PIECE
707	6800871	COVER, CRT
710	7415751	CRT BRACKET
711	6592974	RUBBER
712	6438123	CASE, BOTTOM NECK
714	6693123	MIRROR
718	6013441	CASE, BOTTOM
719	6900251	BOTTOM PIECE
724	5319001	CRT
725	5242022	DEFLECTION YOKE
726	5857001	EVF CABLE
728	5420652	MICROPHONE
733	6800861	HOLDER, CRT
734	6079411	KNOB
901	8699308	SCREW (2. 6X8) BLACK
902	7783614	SCREW (2. 6X12)
903	7784782	SCREW (3X4)
904	0724306	SCREW 2. 6X6
905	7783611	SCREW
906	8699308	SCREW (2. 6X8) BLACK
907	8699108	SCREW (2X8)
932	8711110	PAN HEAD SCREW - 2MM DX 10MM
934	8699106	SCREW
941	7787535	WASHER
942	7778859	POLYSLIDER WASHER
943	8741108	SCREW (2X8)
944	7774943	E RING
946	7778848	POL SLIDER WASHER
947	8741105	SCREW (2X5)
948	7778859	POLYSLIDER WASHER
949	7787615	POLY-SLIDER WASHER
951	8650105	SCREW (2X5)
952	8691108	SCREW (2X8)
954	7788901	POLY-SLIDER WASHER
955	8741103	SCREW (2X3B)
957	8741103	SCREW (2X3B)
959	8691105	SCREW
960	8741105	SCREW (2X5)
961	7785183	NUT
962	8741105	SCREW (2X5)
964	7780901	SCREW (1. 7X4)
965	8741105	SCREW (2X5)
966	8650108	SCREW (2X8)
967	8741106	SCREW (2X6)
969	8741106	SCREW (2X6)
970	7780905	SCREW (1. 7X6)
971	7780905	SCREW (1. 7X6)
972	8691106	SCREW (2X6)
973	7787615	POLY-SLIDER WASHER
974	8741106	SCREW (2X6)
975	8741104	SCREW (2X4)
976	7774943	E RING
978	7774943	E RING
980	8650105	SCREW (2X5)
981	8741103	SCREW (2X3B)
984	8741108	SCREW (2X8)
985	7789931	WASHER
986	8741114	SCREW (2X14)
987	8741109	SCREW
988	7780902	SCREW (1. 7X2)
989	7780902	SCREW (1. 7X2)
990	8741104	SCREW (2X4)
992	8741106	SCREW (2X6)
994	7784371	SCREW
996	7782611	SCREW
997	7778855	POLYSLIDER WASHER
999	8711106	SCREW (2X6)